Highlight of the Week@IITD

IIT Delhi, Bombay alert! HRD mulls big move after IoE tag; here's how it may affect hiring, courses, fees

https://www.financialexpress.com/education-2/iit-delhi-mumbai-alert-hrd-mulls-big-move-after-ioe-tag-heres-how-it-may-affect-hiring-courses-fees/1282205/

UGC's 'Institutions of Eminence Deemed to be Universities Regulations, 2017' was approved by the Union Cabinet in the month of August last year.

As an IoE, IIT Delhi and Bombay should be free to decide their tuition fee for domestic and foreign students.

A month after the tag of Institution of Eminence (IoE) was bestowed upon two top Indian Institute of Technology (IIT) institutes by the Centre, the Human Resource Development Ministry is all set to move forward to provide them greater autonomy, giving them greater freedom to decided on their fee and course structures. According to an Indian Express report, the Prakash Javadekar-led ministry is considering to set IIT Delhi and IIT Bombay free from the control of the IIT Council.

The ministry is considering to take this big move as the Institutions of Eminence tag that was awarded to the institutes has granted the two establishments greater autonomy in comparison with other higher education institutions. As an IoE, IIT Delhi and Bombay should be free to decide their tuition fee for domestic and foreign students. Along with this, now, they can also have a flexible course duration and structure.

However, they still come under the control of the IIT Council that has the power to decide tuition fee and course duration for the programmes run by them. The IIT council is headed by the HRD Minister and it is the highest decision-making body for all the IITs. While it controls the activities of the 23 premiere technical institutes, it advises them on the matters of fee and course duration. It also lays down policy regarding cadres, the method of recruitment and others.

"We want to remove contradictions. On one hand, as IoEs, the two IITs have extensive autonomy, but, under the IIT Act, they are still bound by the decisions of the IIT Council. This matter could be discussed at the upcoming meeting of the IIT Council on August 21," Higher Education Secretary R Subrahmanyam said, adding that the review of the fee charged to foreign students is on the meeting agenda, and the matter to free the two institutes is yet to be discussed in the same meeting.

UGC's 'Institutions of Eminence Deemed to be Universities Regulations, 2017' was approved by the Union Cabinet in the month of August last year. Its regulation are aimed at creating an enabling architecture for 10 public and 10 private institutions to emerge as world-class institutions since the country has little representation in the international ranking of educational institutions.

Aug 16

GATE 2019 | Official notification released by IIT-Madras
https://www.brainbuxa.com/education-news/gate-2019-official-notification-released-by-iit-madras-8604

The official notification for the GATE 2019 has been released by the IIT-Madras. Graduate Aptitude Test in Engineering (GATE) is a national level exam which is conducted to offer admissions to the students into masters and direct doctoral programs in the relevant branches of the science. This year, the exam is organized by the IIT-Madras.

Important dates for GATE 2019

GATE 2019 Online Application Form Opens: 1st September 2018
Last Date for Submission of Application: 21st September 2018
Last date for registration (with late fee): 1st October 2018
Last Date for Requesting Change of Examination City: 16th November 2018
Mock Test Release: 3rd week of November 2018
Admit Card Downloading Starts: 4th January 2019
GATE Aptitude Test: 2nd, 3rd, 9th & 10th February 2019
Answer Key Release: Within a few days after the examination
Announcement of Results: 16th March 2019
Score Card Release: 20th March to 31st May 2019

Counseling Starts: 1st week of April 2019

New changes introduced this year
This year, a new paper on Statistics has been added
Candidates will have an opportunity to submit the online form after the due date

Application fee
The application fee for the exam will only be accepted via online mode only
The fee is non-refundable and non-transferable

Application fee for examination centers in India
SC/ST/PwD/ Female candidates Rs. 750
All Other Categories Rs. 1500
Late Fee Rs. 500

Application fee for examination centers outside India
Addis Ababa, Colombo, Dhaka and Kathmandu US $50
Dubai and Singapore US $100
Late Fee US $20

IIT Mandi ties up with RxDataScience Inc., U.S., to create Portal documenting Artificial Intelligence and Machine Learning Research in pharma sector

http://indiaeducationdiary.in/iit-mandi-ties-rxdatascience-inc-u-s-create-portal-documenting-artificial-intelligence-machine-learning-research-pharma-sector/

Indian Institute of Technology Mandi has tied up with RxDataScience Inc., a leading healthcare manufacturer in the United States, to create a portal documentation Artificial Intelligence and Machine Learning Research in the Pharmaceutical Sector.

Further, IIT Mandi team is also planning to work closely with RxDataScience Inc, to apply deep-learning methods and cognitive algorithms for discovering patterns among patient journeys and social ties among physicians. This is part of a long-term collaboration focused on performing machine-learning on healthcare datasets concerning patients and physicians and developing novel web-based visualizations.

Explaining the importance of this collaboration, Prof. Varun Dutt, Assistant Professor, School of Computing and Electrical Engineering, IIT Mandi, said, "Data Sciences in India are at a very nascent stage yet but in the U.S, most healthcare and pharmaceutical companies have moved onto the consulting stage wherein live cases are debated online by the doctors and medical practitioners' community."

India is at the helm of a healthcare boom given that the Government of India has hiked in health spending by 11 per cent with a gross budgetary allocation of Rs. 1,200 crores for opening more

hospitals. Further, Prof Varun Dutt said, "State-of-the-art infrastructure on ground can help only when off ground data science evolves and put the registers and medical charts online up for discussion with other doctors. IIT Mandi is pleased to work with such a nodal agency in the healthcare sector the world over and this puts India on the world map of healthcare mapping online."

Expressing happiness at this collaboration, Mr. Larry Pickett, Chief Executive Officer, RxDataScience Inc., said, "The RxDataScience and IIT Mandi research collaboration has been extremely productive in generating innovative new algorithms and visualization tools using the latest AI and machine learning approaches applied to longitudinal patient data. Both patients and our biopharma clients benefit from insights generated using novel approaches with cognitive and decision sciences applied to patient finding, patient journey and other complex use cases. We are excited to continue our long-term partnership with Dr. Varun Dutt and the PhD and undergraduate students at IIT Mandi."

In a country such as India, data sciences can really revolutionize the way rural healthcare works further reducing the cost incurred by other primitive methods of healthcare used in rural areas. Integrating the medical service provider with wearable technology is one way to do this. Wearables can monitor a person's habits and provide ongoing assessment of their lifestyle and activity levels. Internationally, many insurers are offering services based on the use of these devices.

Aug 15

IIT's Anti-TB 'Inhaler' drug holds out hope of faster recovery

https://mumbaimirror.indiatimes.com/mumbai/cover-story/iits-anti-tb-inhaler-drug-holds-out-hope-of-faster-recovery/articleshow/65407840.cms

Dr Vinay Saini, scientist from IIT-B, says animal trials are expected to be completed by next year

4 national institutes working on medication that will cut down duration of treatment; the first phase of trials shows 'remarkable' success.

Imagine a drug for tuberculosis (TB) that not only cuts down the duration of treatment but can also be administered via an inhaler. The Indian Institute of Technology-Bombay (IIT-B), along with three

other renowned national institutes, is running clinical trials of a breakthrough medicine that aims at treating multi-drug resistance (MDR) and killing the bacteria in the lungs more quickly, if taken along with the regular medication.

The research holds much promise as it would significantly shorten the current two-year treatment, and the easy mode of administration would persuade more patients to complete their course of medication. Currently, MDR-TB treatment involves 16 tablets a day and daily injections for the first six months.
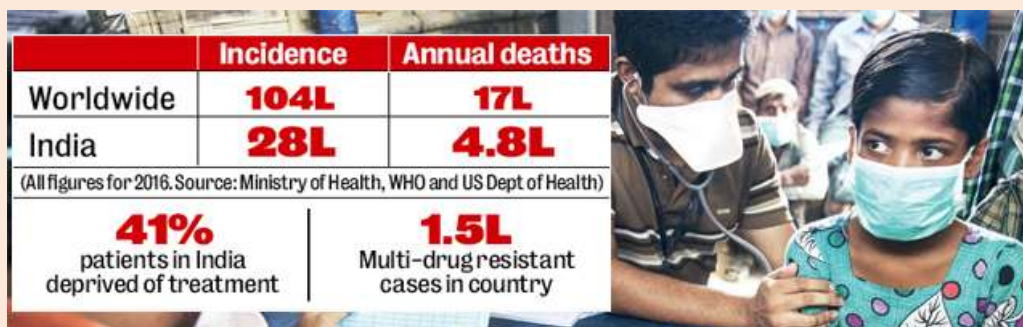
Dr Vinay Saini, senior scientist from department of biosciences and bioengineering at IIT-B who is part for the research, said pulmonary TB comprises a majority of MDR cases. "A drug that can be inhaled can go directly to the lungs, which can help kill the bacteria faster."

He said the research began last year and the first phase of the trials has been completed at the National Institute of Tuberculosis and Respiratory Diseases, New Delhi — which is also conducting the study with the National Jalma Institute of Leprosy and Other Mycobacterial Diseases in Agra, and the Delhi-based Indian Council of Medical Research. The results have been "remarkable".

Prof Rohit Shrivastava, who is also part of the research team, said animal testing will begin soon. "Since we don't have such a facility at IIT, trials on mice will conducted at the National Jalma Institute of Leprosy and Other Mycobacterial Diseases." If those tests are a success, they will move on to bigger animals, like rabbits and chimpanzees, and finally, on MDR patients at the Sewri TB hospital. "We are hoping to complete our animal trials by next year," said Shrivastava.

The researchers were not at liberty to divulge the composition of the drug, but they said it is largely herbal and, therefore, its side effects are close to nil. Contraindications of the current TB medication range from persistent gastritis to loss of hearing and depression. Although it's still in the nascent stages, the drug's cost is expected to be significantly lower than the current cocktail of medication, which can set an MDR-TB patient back by Rs 1.75 lakh.

The study is being funded by city based Tata Trusts (Rs 2 crore) and the ministry of human resource development (Rs 2.5 crore).

	Incidence	Annual deaths
Worldwide	104L	17L
India	28L	4.8L

(All figures for 2016. Source: Ministry of Health, WHO and US Dept of Health)

41% patients in India deprived of treatment	1.5L Multi-drug resistant cases in country

Mumbai sees 30,000 new cases of TB every year

IIT-B, in coordination with the Sewri TB hospital, has also developed a cost-effective kit to detect the disease in two to three hours from urine, blood and sputum samples. Currently, diagnosis takes five days and pulmonary TB can be detected from sputum alone.

Each kit will cost only Rs 65 and can be easily carried to remote areas. The kit will be a boon to children since collection of sputum from them is rather difficult.

Pending approval from the BMC's ethics committee, the kits will be available at the Sewri TB hospital.

Two IIT-H profs chosen for NASI-Young Scientist awards

http://www.thehansindia.com/posts/index/Young-Hans/2018-08-15/Two-IIT-H-profs-chosen-for-NASI-Young-Scientist-awards/405658

Two Indian Institute of Technology-Hyderabad (IIT-H), Professors have been chosen for the NASI-Young Scientist Platinum Jubilee Awards (2018) by the National Academy of Sciences, India (NASI) this year. The results were announced recently.

Sushmee Badhulika, Associate Professor, Department of Electrical Engineering, IIT Hyderabad, was chosen in recognition of her excellence in category of 'Electronics, Computer Science and Engineering.' Aravind Kumar Rengan, Assistant Professor, Plasmonic NAnoSpace (P-NAS) Laboratory, Department of Biomedical Engineering, IIT Hyderabad, was chosen in the Bio-medical, Molecular Biology and Bio-technology category.

Accepting the award, Sushmee Badhulika said, "I started working in the field of flexible nanoelectronics after joining IIT Hyderabad in 2014. I am thankful to IITH for providing an incredible work environment with very bright and hardworking students. I feel extremely humbled that our research has being recognized by all National Science and Engineering Academies of India. It motivates me to continue working in a field where role of women researchers is somewhat subdued."

Accepting the award, Aravind Kumar Rengan, said, "I am very happy to receive this prestigious award from NASI, the first science academy of India. The entire credit goes to the students of my lab at IIT Hyderabad. I thank all my mentors, well-wishers and IITH for their constant support and encouragement."

Sushmee Badhulika's primary research is flexible nanoelectronics and electrochemical nanosensors. Her research focus is to develop low-cost multifunctional nanosensors for healthcare. She also works in the field of eco-friendly electronics, paper electronics and supercapacitors for energy storage applications.

Some of her earlier awards are from the DST (Department of Science & Technology) Inspire, Institution of Engineers (IEI), Indian Academy of Sciences (IASc), Indian National Academy of Engineering (INAE), Indian National Science Academy (INSA), National Academy of Sciences (NASI) and recently the SERB (Science and Engineering Research Board), DST Women Excellence Award.

Aravind Kumar Rengan heads the Plasmonic NAnoSpace laboratory (P-NAS Lab) at IIT Hyderabad and is working in the area of cancer nanotechnology. The award was given in recognition of his work for developing affordable nanomedicines towards cancer theranostics (combining diagnostics with

therapeutics). He plans to perform translational research involving novel nanomedicines synthesized in IIT Hyderabad laboratories and proceed towards human clinical trials in collaboration with Pharma Industry.

After his MBBS degree from Thanjavur Medical College, Tamil Nadu, Dr. Aravind Kumar Rengan went onto do his Masters in Nanomedical Sciences from Amrita Centre for Nanosciences (DST centre of Excellence) followed by a PhD in the same field at IIT Bombay - Institute of Eminence.

His research is focused on developing affordable nanosystems to achieve better outcome in cancer treatment. Some of his earlier awards include DST INSPIRE, DBT Innovative Young Biotechnologist Award, INSA Young Scientist Medal, IIT Bombay - Excellence in PhD Thesis.

JEE MAIN 2019 | Application process to begin from September 1

https://www.thestatesman.com/books-education/jee-main-2019-application-process-begin-1-september-1502673424.html

The Joint Entrance Exam (JEE) is the national level competitive test to shortlist engineering aspirants for admission to undergraduate engineering programmes offered across India. Earlier it was known as All India Engineering Entrance Examination (AIEEE).

The national level JEE Main Exam will be conducted by the National Testing Agency (NTA) twice a year. The examination was earlier conducted by the Central Board of Secondary Education (CBSE). According to the NTA, the January session of the JEE Main 2019 will be conducted in eight sittings from 6-20 January.

The candidates who will appear for the examination must note that the applications for the same will open online on 1 September and the last date to submit the completed applications is 30 September.

The result will most likely be announced in the first week of February. However, these dates are tentative and there has been no official confirmation from the board. For appearing in the JEE Advanced exam 2019, candidates will have to qualify the JEE Main exam.

Some major changes in JEE Main 2019 are:

Starting in 2019, JEE Main will be conducted by the NTA instead of Central Board of Secondary Education (CBSE)

The JEE exam will be conducted in the online mode only

The frequency of the exam has been increased from once to twice in a year and the exam will be conducted in January and April

Each session will have 8 sittings, with candidates having the option to book their session (only one session allowed though)

With the exam slated to go completely online, provisions are being made to ensure candidates get familiar to functionalities of the computer-based test through mock tests.

NTA will set up mock test centers across the country in August where candidates can go and practice during the weekends.

What is JEE?

The Joint Entrance Exam (JEE) is the national level competitive test to shortlist engineering aspirants for admission to undergraduate engineering programmes offered across India. Earlier it was known as All India Engineering Entrance Examination (AIEEE). The JEE Mains Result is used to determine rank / score of an engineering aspirant on the basis of which admission is granted into National Institutes of Technology (NITs), Indian Institutes of Information Technology (IIITs), Centrally Funded Technical Institutes (CFTIs).

Aug 14

A brain-inspired chip from IIT-Delhi could be the next big leap in AI hardware

https://factordaily.com/manan-suri-neuromorphic-computing-cyran-tech-solutions/

"The human brain has 100 billion neurons, each neuron connected to 10 thousand other neurons. Sitting on your shoulders is the most complicated object in the known universe," Michio Kaku, Physicist and Futurist

The human brain, which not just stores but also computes, is by far the most powerful and complex computers in the world that occupies just 1.3 litres of space and consumes about 20 watts of power. In comparison, the finest supercomputers in the world require gigawatts of power, massive real estate, infrastructure, and dedicated cooling systems while attempting to perform brain-like tasks.

Understanding how the human brain functions and replicating it has been a lifelong quest for the scientific and research community. Enter neuromorphic computing, a concept developed by American

scientist and researcher Carver Andress Mead in the late 1980s – which tries to emulate certain functions of the human brain in silicon.

And, why should you care about neuromorphic computing? Because it is a subset of the larger artificial intelligence hardware industry and one of the limiting factors for the growth of AI has been the processors that deliver the computing.

A professor at Indian Institute of Technology-Delhi may have the latest answer in the quest for neuromorphic computing. Manan Suri (pictured above)'s invention is the result of a finding he made that certain types of storage devices displayed properties that allowed them to emulate certain functions of the brain in silicon.

Suri, an assistant professor with the department of electrical engineering at IIT-Delhi, in 2010 first discovered that a certain type of non-volatile memory, usually used for data storage, displayed properties that lend itself to be an ideal solution to develop neuromorphic computing hardware.

"The brain is an amazingly sustainable machine; it consumes only ~ 20 W of power, occupies less than 2 litres of volume, doesn't need to connect to any cloud and excels at performing complex computations in real-time and in highly noisy and uncertain environments," says Suri who realised that emerging non-volatile memory (eNVM) displayed the learning ability and energy efficiency of computational elements inside the human brain, like synapses. His research in the field lead to him being recognised as one of the '35 Innovators under 35' by MIT Technology Review.

eNVM and Neuromorphic Computing

What is a non-volatile memory? Non-volatile memory is essentially a memory that is used to store data long term even when it is not powered. E.g.: the hard disk on your computer or the USB drive you used to store data on are non-volatile memory types. On the other hand, your computer's RAM (short for random access memory) is a volatile memory because the data stored on it is lost as soon as you shut off the machine.

eNVM, or emerging non-volatile memory, devices are a special class of advanced nanoelectronic storage devices that offer higher performance and lower cost as compared to today's devices.

"We saw that there are some exciting properties that they (eNVM devices) have which are similar to biological synapses and neurons. We can take these things and build small circuits and functional architectures so that they start behaving like very efficient neural networks for neuromorphic systems," says Suri, who was awarded his PhD in nanoelectronics and nanotechnology from France's Institut Polytechnique de Grenoble in 2013.

Small silicon dies with exploratory neuromorphic devices and circuits designed at Suri lab at IIT-Delhi

Today, most traditional computing systems are based on the von Neumann computing principles where memory and processing are two distinct and isolated blocks. Dedicated resources are needed to implement storage and logic functionality. This leads to several inefficiencies and bottlenecks while solving certain types of data-rich problems. Neuromorphic architectures are essentially non-Von Neumann in nature, which means that memory and processing are not fully isolated. Memory is intelligent in such systems and it actively contributes to computations, a lot like how the human brain functions.

"Most modern computers have only a few processing cores that can compute and abundant memory that can store the computed results. All that abundant memory just dumbly stores the data sitting there. This is fundamentally different from computing in nature, where memory is not dumb anymore. This is what we mean when we refer to neuromorphic computing," says Suri.

What can neuromorphic computing do? Most computational hardware today – especially used in the fields including AI, deep learning and neural networks – is not considered efficient in terms of energy consumption or size in comparison to the brain.

Today, much of the deep learning computations are rendered on graphics cards or graphics processing units (GPUs). Even though GPU makers are releasing better and better graphics cards every year, we are yet to see a brain-like intelligence chip – or anything close to it – come out.

"The fundamental problem is still that you are nowhere close to the power requirement. At the end of the day, your brain is running on 20 watts, it has 100 billion compute units each with three orders of magnitude more connectivity. You can throw huge supercomputers with lots of GPUs and then maybe you might equate the computational power of the brain, even with all the deep learning

models," says Anand Chandrasekaran, CTO and co-founder of AI-focused, Chennai company Mad Street Den.

According to Chandrasekaran, who was part of the team that built a neuromorphic system called Neurogrid during his postdoctoral studies at Stanford, the fundamental approach is that you need specialised hardware and the GPU is one step towards it but it is nowhere near specialised enough.

The only way you are going to be able to match the brain in terms of size and complexity is if you can bring down the power usage low enough that you can actually build a practical device that can house an entire brain according to Anand Chandrasekaran, CTO and co-founder of Mad Street Den

"Specialised hardware is going to come out of things like neuromorphic research because there the premise itself is 'Can you do all that computation using ultra-low power and build it using the kind of architecture you find in the brain'," says Chandrasekaran. "In the long run, the only way you are going to be able to match the brain in terms of size and complexity is if you can bring down the power usage low enough that you can actually build a practical device that can house an entire brain and that is the promise of neuromorphic engineering."

Neuromorphic computing development is still in its early days, most companies and hardware being developed out there is a lot in the R&D or proof-of-concept stage. Qualcomm's Zeroth platform, Intel's Loihi chip, IBM's TrueNorth are some examples of products and platforms being developed in the field of neuromorphic engineering globally.

Hello, Cyran Tech

In March this year, Suri founded Cyran Tech Solutions with an aim to develop commercial solutions based on the neuromorphic AI R&D he has been doing.

According to him, the eNVM-based neuromorphic hardware that he has researched on is efficient on three counts – energy, power, and area – compared to conventional solutions. It is also faster and unsupervised in some cases.

"After the discovery, there were several inventions down the path. The discovery was that the device can act as a synapse but then it needed several inventions in each step to actually put these devices

into a system. For this purpose, several of circuits were invented, architectures were invented, learning rules were invented or modified," says Suri.

Cyran Tech has developed a variety of both hardware-specific and hybrid solutions, he adds. The company is in the midst of some proof-of-concept solutions in field trials in Singapore and Europe. These are early days in the company's journey and its product development path is yet to be chosen, Suri says. "Six months down the line we are not sure if we will be purely in neuromorphic software or purely in neuromorphic hardware."

Most modern computers have only a few processing cores that can compute and abundant memory that can store the computed results. All that abundant memory just dumbly stores the data sitting there. This is fundamentally different from computing in nature, where memory is not dumb anymore.

Cyran is also looking into using the neuromorphic hardware to develop solutions for cyber-physical security.

Suri sees a future where the memory on devices increases and if these memory units can also compute, it can bring about much more power as compared to today. Then, he says, it makes sense to have a memory that can do all functions. "It can help the system store, compute, sense and secure itself and this is our research track," he says.

IIT-R Professor receives G.D. Naidu Award in biomedical nanotech

https://www.biospectrumindia.com/news/66/11489/iit-r-professor-receives-g-d-naidu-award-in-biomedical-nanotech.html

The award carries a cash component of Rs. 1 lakh and citation and is sponsored by the Singapore Mustafa Tamil Trust.

Dr. M. Anandakrishnan (fourth left), Padma Shri awardee, former honorary chairman of the Board of Governors of the IIT Kanpur & Former Vice-Chancellor of Anna University, Chennai, honours Dr. P.Gopinath, Associate Professor, IIT Roorkee, with G.D. Naidu Award for Young Scientist in Erode

Indian Institute of Technology Roorkee (IIT-R) faculty Dr. P. Gopinath has been awarded the prestigious G.D. Naidu Award for Young Scientist by Makkal Sinthanai Peravai, a non-profit organization. The award carries a cash component of Rs. 1 lakh and citation and is sponsored by the Singapore Mustafa Tamil Trust.

The award was given to Dr. Gopinath, who is an Associate Professor in Department of Biotechnology, IIT Roorkee, for his outstanding contribution in the field of biomedical nanotechnology by Dr. M. Anandakrishnan, Padma Shri awardee, former honorary chairman of the Board of Governors of the, Indian Institute of Technology Kanpur and Former Vice-Chancellor of Anna University, Chennai.

Dr. Gopinath developed various polymer based nanocarriers for the delivery of several anticancer agents and also exploring the possibilities of different biocompatible imaging agents for cancer diagnosis. To detect cancer cells, his research group has recently synthesized carbon dots by heating a solution of finely chopped periwinkle plant leaves under controlled conditions and then cooled it down to room temperature.

This process yielded nanosized carbon dots. When incubated with specific cancer cells, the carbon dots entered the cells. These cells showed enhanced fluorescence, indicating that the dots reached inside the cells.

By this way, cancer cells can be detected and as the entered carbon dots binds and destroy the cytoskeleton proteins, they can be used as an anti-cancer agent as well. This is an economical and green way to produce fluorescent carbon dots from the leaves of a common medicinal plant.

His research group has also developed a portable nanofibrous membrane that removes bacteria present in the polluted water. This membrane can be used similar to cloth based homemade filter to remove other pollutants present in the water by simple filtration. It could also be possible that immersing the membrane in the contaminated water would kill the bacteria due to the presence of bactericidal agent (Silver nanoparticles). His research group has also developed nanomaterials for potential applications in air purification.

Currently, Dr. Gopinath's research projects aim to produce economical and affordable solutions for pressing healthcare problems facing the country. He has filed a patent for "4D tissue engineering device" and also published high impact research articles in many of the world's leading biomedical journals.

IIT Kharagpur Youth Conclave 2018: AICTE Chairman stresses on encouraging innovation and more

https://www.indiatoday.in/education-today/news/story/iit-kharagpur-youth-conclave-2018-aicte-chairman-1313994-2018-08-14

All India Council for Technical Education (AICTE) Chairman Anil Sahasrabudhe has stressed on the congregation of the new initiatives of AICTE and Indian National Academy of Engineers (INAE) to encourage innovation.

Sahasrabudhe was speaking on the Centre's move to encourage innovation at the 2nd Indian National Academy of Engineers Youth Conclave at IIT Kharagpur.

HERE'S WHAT ANIL SAHASRABUDHE SAID:
Important schemes have been initiated by AICTE, the national-level council for technical education in the country, to improve laboratory condition of institutions while distinguished fellows can now visit other centres for a full semester and claim reimbursement.
Sahasrabudhe also said in a message to the conclave souvenir that the recent 'Smart India Hackathon' initiative by the AICTE and MHRD involved Under Graduation students of technical institutions.

AIM OF 'SMART INDIA HACKATHON'
The 'Smart India Hackathon' was aimed at solving challenging problems of different government departments, ministries and state governments, and engage with young students for creating world's largest open innovation model -- according to Sahasrabudhe.
The AICTE chief said, "many countries such as Canada, Australia, South Korea and Singapore have shown keen interest in participating under this banner."

"**Certainly**," he added, "**these exercises help bring awareness and fundamental skills among students and help build the foundation for future innovation and skill development**."

INSTITUTES THAT SECURED PRIZES
- Students from different institutes competed in six sections at the Youth Conclave which ended on August 12
- The students made their presentation at the finals on August 11-12
  While the School of Aeronautics, Neemrana, won the top prize for Optimising Food Chain Aspects, Future Institute of Engineering and Management, Kolkata won the first prize in the Swachh Bharat Abhiyan category.
- IIT KGP team lifted the first prize for 'Town Planning'
- IIT KGP also won the top prize for both healthcare app development and digitisation of agriculture

IIT JAM 2019 examination schedule released, check details here
https://www.jagranjosh.com/news/iit-jam-2019-examination-schedule-released-check-details-here-146429

The Indian Institute of Technology Kharagpur has released the notification for the Joint Admission Test or JAM 2019 examination on their official website gate.iitkgp.ac.in. This test is conducted to provide admission to M.Sc, Joint M.Sc, PhD, M.Sc, PhD. Dual Degree etc. Every year, one IIT conducts this exam. This year, IIT Kharagpur will be the organising institute. The JAM 2018 test will be conducted through the online mode. The JAM 2019 test is open for all nationals (Indian / Foreign). All the candidates who want to enroll for the academic programmes offered under JAM 2019 will have to appear in the test.

As per the notification, there is no bar in age limit. The aspirants who are appearing for the exam have to fill up the JAM 2019 application form online through the official website. The online registration and application of JAM will start from September 1, 2018. The last dates to upload the documents are October 1st, 2018. The examination date for JAM 2019 is February 10th 2019. It will be conducted online, i.e. it's going to be a computer-based test.

Application Timeline		Test Schedule: February 10, 2019		
		Session	Time	Test Papers and Codes
ONLINE Registration and Application Process	September 01, 2018	I	9:00 AM TO 12:00 Noon	Biological Sciences (BL) Mathematics (MA) Physics (PH)
Closure of ONLINE Application Process	October 01, 2018	II	2:00 PM TO 5:00 PM	Biotechnology (BT) Chemistry (CY) Geology (GG) Mathematical Statistics (MS)
Announcement of JAM 2019 Result	March 20, 2019			

Eligibility:

The aspirants who will qualify in JAM 2019 will have to fulfill the following Eligibility Requirements (ER) for admissions in any of the IITs.

All candidates admitted through JAM should have a Bachelor's degree.

In the qualifying degree, the aggregate marks or CGPA/CPI without rounding-off (taking into account all subjects, including languages and subsidiaries, all years combined) should be at least 55% or 5.5 out of 10 for General/OBC (NCL) category candidates and 50% or 5.0 out of 10 for SC/ST and PwD category candidates.

All the students will be allowed to download the admit card for the entrance test on January 04, 2019. It is very important for the aspirants to download the admit cards on time. The mock test link will be available on the website from January 10, 2019. Interested students can take the Mock Test for the revision purpose.

Aug 13

How to retain women in STEM researches

https://timesofindia.indiatimes.com/home/education/news/how-to-retain-women-in-stem-researches/articleshow/65383723.cms

Despite the greater opportunities in STEM and a rich history of scientists such as Rukhmabai (India's first practicing doctor), Janaki Ammal (botanist), Ashima Chatterjee (India's first woman doctorate in Science), Kamala Sohonie (biochemist), Rajeshwari Chatterji (first woman engineer from Karnataka and IISc's first woman faculty) Shakuntala Devi (mathematical wizard), to mention a few, it has been observed far fewer girls choose to enter the research sector of Science, Technology, Engineering and Math (STEM).

To improve the abysmally less percentage of women in IITs, the MHRD directed 23 IITs to add at least 14% female students in the list in 2018. "The increase in female enrolments happened not been by accident but by design. Our faculty took a proactive approach, mentoring and counselling parents. We had to dispel many pre-conceived doubts," says V Ramgopal Rao, director, IIT Delhi. The proactive approach helped at IIT Delhi which registered 16% enrolments (143) in the 2018-19 session as opposed to 93 enrolments last year.

Timothy A Gonsalves, director, IIT Mandi, heading the JAB subcommittee set up to increase female

enrolment in IITs, says, "We had set a target of 20% seats for girls within the IITs and the results have been encouraging. At IIT Mandi itself, 18% seats (36) have been filled by girls out of 200 seats, which shows their numbers is on the rise."
Postdoctoral position

Keeping in view the larger picture, Indian women constitute almost 40% undergraduates in Science, with Engineering coming a close second. "Even among the PhDs in Science, about 25-30% are women, the actual attrition begins after the PhD. The numbers of women with successful STEM careers is small. In fact, women heading laboratories, science section in government offices in the governing or advisory bodies is not too common," says Rohini M Godbole, professor at the Centre for High Energy Physics, Indian Institute of Science (IISC).

Godbole, who has authored Lilavati's Daughters, a collection of biographical essays on women scientists in India, feels the steady decrease in the numbers is due to their inability to balance a family and career. "Pressure to manage the family needs to change," Godbole says. The institute now has started a crèche, owing to the high rate of female scientists dropping out owing to family responsibility.
Godbole observed that while there are no dearth of women teaching Science and Mathematics in schools and colleges, the percentage of women faculty of institutes like TIFR (Tata Institute of Fundamental Research), the IITs, or IISc is just 10-12%. "Low percentage of women between the doctoral and professional stages may be attributed to social pressure on women," she adds.

Need of the hour
Stereotype threat (linked to the common perception that girls are not good in Math) and implicit bias are the reasons why women remain underrepresented in STEM fields, says VK Garg, president and CEO of MPower Global STEM Education, a Gurugram-based firm working on STEM education. Deep-rooted gender discrimination is yet another reason that women are not seen at senior level and sometimes not considered for promotions, adds Garg.

Efforts and initiatives
Government as well as the private sector has introduced a number of programmes to help women resume their careers in science after a break while gender equity in Science and Technology (S&T) as a policy was introduced a decade back. "While that is necessary it is far from sufficient. Flexible postdoctoral positions where women can 1)either work from home (if their research permits) or 2) they can return to a postdoctoral position and rebuild their resume to apply for a job in case they take maternity leave can check attrition rates," says Godbole.

Timely intervention, at school level, can help mitigate gender imbalance in STEM, feels Mudrika Khandelwal, professor, IIT Hyderabad, who has been closely associated with her institute's Vignan Jyothi Knowledge Centre to look into coaching, mentorship with role models to stimulate equity and equality in girls' participation in higher education and STEM careers. "This year, a 2 week residential pilot programme was organised for 30 meritorious class XI girls (from government schools of Kandi and Sangareddy) to expose them to lectures, seminars, lab visits, hands-on sessions, personality development, etc," says Khandelwal.

Ways to nurture more women in STEM

• Encourage more girls to participate in programmes like Science Olympiads

• Science academies should mentor and showcase work done by women scientists, to an audience of both genders

• Childcare facilities should be made available on campus

• Reward excellence among women

• Provide improved work climate to ensure gender sensitivity and effective addressing of harassment issues

Women versus men in research

As per the UIS (UNESCO Institute for Statistics) data, less than 30% of the world's researchers are women. The Indian scenario, is far from encouraging with only 14% of Indian researchers being women since Science is seen as a male-dominated bastion. Only 25% of women hold top positions in various institutions and universities with the number being high only in biological research institutes. Women constitute only 14% of 2.8 lakh scientists, technologists and engineers in R&D institutions that translates into approximately 39,389 women while the numbers are 28.4% globally.

Has India Become The Hub of Startups, Courtesy IIT?

https://www.entrepreneur.com/article/318373

IITs are becoming the breeding ground for budding entrepreneurs

The possibility of diving directly into the sea of business possibilities has empowered the younger generation to innovate. Individuals, right out of colleges buzzing with ideas and knowledge to implement don't hesitate from starting their own business ventures.

While many startups fail due to the lack of experience and real-world application of ideas, we have witnessed an array of organizations reaching Unicorn stage and mushrooming into a public entity in the recent years. Statistics indicate that the majorly of startups which flourish in India have one or the other technological aspect associated.

However distinctive the business idea be, the acceptance of technology has opened gates of success for budding entrepreneurs and startups. Talking about the technology, IIT or Indian Institute of

Technology is considered as the birthing ground for majority of Indian startups. Even the Indian Prime Minister Shri Narendra Modi believes so.

PM Modi on IIT

Addressing the 56th convocation of IIT-Bombay, PM Modi called IIT graduates the frontrunners of India's startup ecosystem. Considerably, a large number of Engineering graduates have built the IT sector of India with hard-work and diligence leading to the nation becoming "one of the world's largest pools of technical manpower".

Calling IIT -- India's Instrument of Transformation, PM Modi expressed that the institute has sourced the Startup revolution in India. Entrepreneur India analyzed the gravity of his words and assessed the formation of India's 15 tech unicorns only to realize that 8 out of these businesses have IIT graduates in their founders' team.
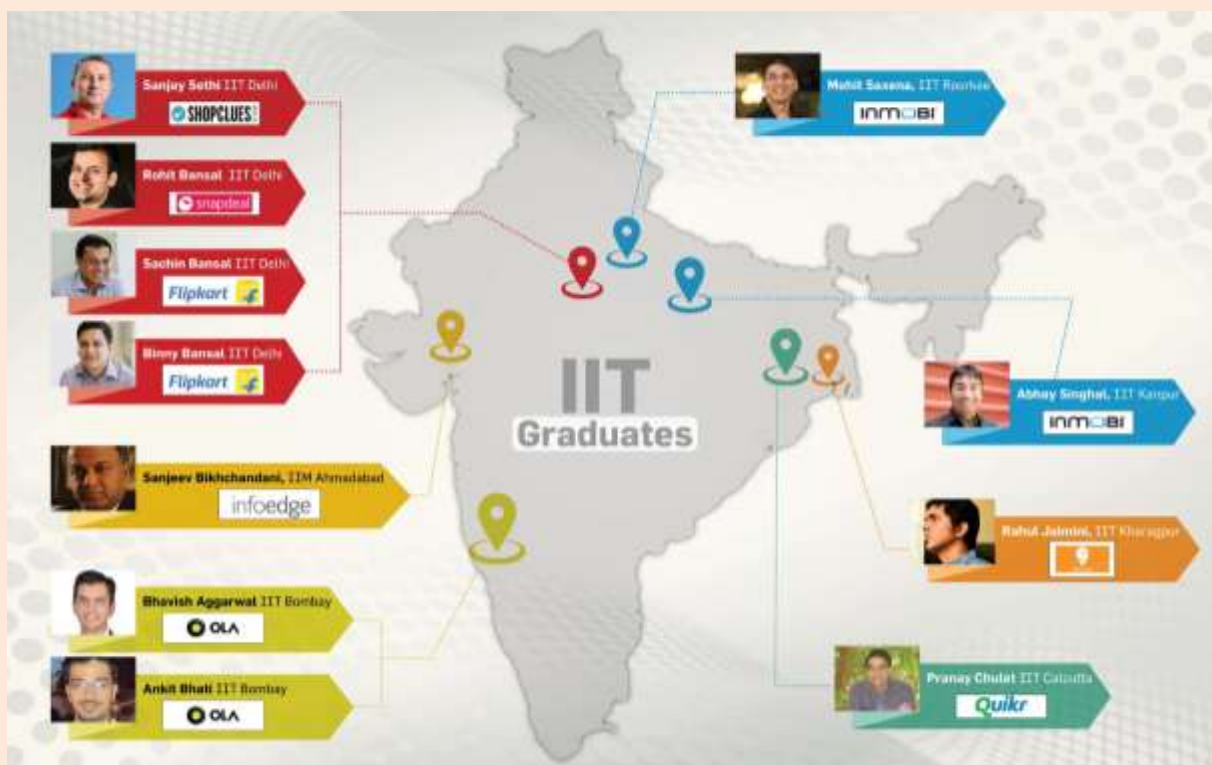
"IIT graduates are at the forefront of some of the best startups in India. These are start-ups that are also at the forefront of solving so many national problems," said PM Narendra Modi stating that India is proud of what IIT graduates have achieved over the years as technology experts, entrepreneurs, executives and in academics.

Hoping for a long term sustainable technology-led economic growth, the government of India has initiated programs like Start Up India and Atal Innovation Mission to nurture budding ventures into full-fledged business organizations with a bit of hand-holding. However, government can't do all the work alone.

IITs Helping Potential Startups

With the aim of lending a helping hand to future entrepreneurs in creating potential startups, IIT-Delhi had recently announced a program of turning thesis papers submitted by PhD scholars into full-fledged startups. The ventures will also be provided with seed capital, mentoring, accommodation and access to IIT-Delhi labs.

The program will also provide the shortlisted researchers pursuing doctoral studies with a monthly compensation to kickstart their startups for three years considering the challenges and expertise needed. To ensure seamless nurturing of over 50 companies every year, the institute is planning to set up a separate incubation centre at Sonipat, Haryana.

Earlier in 2014, IIT Madras had also started an Incubation Cell which has so far witnessed the establishment of 142 successful startups. The entrepreneurship cell of IIT Bombay has also offered a number of opportunities to bring out the best of student's ability towards entrepreneurship through master-classes, workshops, investor summits and exhibitions.

IIT Bombay Alumnus and CEO of Auxledger, Akash Gaurav started his Blockchain research group with the help of IIT-B's E-Cell. He said that different departments of the institute like Placement Cell are taking initiatives for introducing deferral programs to support upcoming Entrepreneurs. "The deferral program allows final year students to skip the placement process and if require, can re-enroll in subsequent years."

Ayush Gangwar, the founder and CEO of Kuants, web-based platform for developing and deploying Automated Algorithmic trading strategies who recently passed out from IIT Kharagpur has stated that IITs have well-established incubation centers within their campuses that provide the students with help in technology and monetary resources in the least hassle-free manner.

He further added, "IITs have a lot of tech-based activities, mostly in collaboration with different industries, going on in their campuses all the yearlong, wherein students come up with innovative solutions to problems faced in there. Various departmental fests, inter-hall events, and events carried out by different companies provide a huge exposure to the students who burn their brains out to solve different problems."

Aug 12

IIT Kharagpur wins Chairman Award for Tech Innovation in IICDC
https://www.jagranjosh.com/news/iit-kharagpur-wins-chairman-award-for-tech-innovation-in-iicdc-146403

What can be termed as another feather in the cap, the Indian Institute of Technology (IIT) Kharagpur has won the Chairman Award for Technical Innovation in India Innovation Challenge Design Contest (IICDC) 2017. The award was given on Battery Health Management System with Integrated Charger by Texas Instruments India (TI), a TI statement said here yesterday.

Sir M Visvesvaraya Institute of Technology of Bengaluru, won the first runners up for their innovation Underwater and Airborne Unmanned Autonomous Vehicle and Bhartiya Vidya Bhavan's Sardar Patel Institute of Technology of Mumbai was adjudged the second runners up award on their innovation Health Set. The IIT KGP figured on top among the 10 winning teams of one of the country's most

popular   design   contests   for   engineering   students.

In the presence of Dr S D Shibulal, co-founder of Infosys, Dr Anita Gupta, Adviser and Associate Head, National Science & Technology Entrepreneurship Development Board (NSTEDB) and the Department of Science and Technology of the union government, the announcement at the grand finale at IIM Bangalore on August 10.

The winners qualify for a Rs 3.5 crore start-up seed fund from the Department of Science and Technology (DST) and an opportunity to be incubated at 'IIM Bangalores innovation and entrepreneurship hub N S Raghavan Centre for Entrepreneurial Learning (NSRCEL).

The final 10 winners were chosen after several rounds of discussions and deliberations by a panel of judges. More than 15,380 students of 965 colleges took part with 30 teams having made it to the final after a rigorous selection process.

Gunit Singh Chabbra of IIT Kharagpur said, "to be one of the top 10 winning teams is absolutely thrilling. IICDC is a once-in-a-lifetime experience and I would encourage students who love technology, have a great idea and want to be entrepreneurs, to definitely give it a shot."

This years edition has witnessed 34 patents filed by the participants across domains like agriculture, health, vehicle safety, IOT, automation, security and eco-friendly appliances, the statement said. In a year-long challenge, the participants were mentored by TI and IIMB.

While TI provided technical resources and guidance throughout the contest - from free tools, technical guidance and mentoring, to helping student develop their prototypes - DST provided funding of Rs 3.5 crore to the student start-ups, which went towards the product development process and seed fund. The Texas Instruments is a global semi-conductor design and manufacturing company which develops analog ICs and embedded processors.

Aug 11

JEE Advanced to be chucked out in the IIT Council meeting on August 21
https://www.indiatoday.in/education-today/news/story/jee-advanced-to-be-chucked-out-in-iit-council-meeting-1309748-2018-08-09

IIT Council to scrap off JEE Advanced

The education system of Indian Institute of Technology(s) is soon to be revamped in the upcoming IIT Council meeting.

The meet will be organized by the Ministry of HRD on August 21 and a proposal will be discussed stating that Joint Entrance Exam (JEE) Advanced will soon be junked-out.

According to an Indian Express report of June 23, the matter of JEE Advanced and its difficulty level is expected to be discussed.

AIM OF THE PROPOSAL

The idea of **Revamping Engineering Education and Returning Childhood to Students** is aimed at checking the multi-million IIT coaching industry and to take IIT-level teaching to more students.

WHAT DOES THE PROPOSAL INCLUDE?

- Removing flagship Bachelor of Technology courses at IITs.
- Converting IITs into high-end institutes that offer post-graduate education.
- IITs and other top institutions may admit students from the top bucket without any further tests or interviews.
- Students who spend a semester at IITs will get degrees issued by their universities.
- These students will also get preferential admission into IITs to do MTech degree -- provided they complete their bachelor's degree with high marks.
- Under the proposal, a student will be allowed to choose the campus of his/her choice and not the course at the time of seeking admission.

NO COMMENT ON THE IMPLEMENTATION

According to HRD ministry sources, the idea would be highlighted in the meeting but the officials did not comment on the feasibility of its implementation.

ABOUT JEE ADVANCED EXAM 2018

Joint Entrance Examination Advanced (JEE-Advanced), formerly the Indian Institutes of Technology-Joint Entrance Examination (IIT-JEE), is an annual engineering college entrance examination in India. It is conducted by one of the seven zonal IITs (IIT Roorkee, IIT Kharagpur, IIT Delhi, IIT Kanpur, IIT Bombay, IIT Madras, and IIT Guwahati) under the guidance of the Joint Admission Board.

ABOUT IIT COUNCIL

The IIT Council is the governing body responsible for all of the Indian Institutes of Technology.
The IIT Council comprises the minister-in-charge of technical education in the Union Government (as Chairman), three Members of Parliament, chairmen of all IITs, directors of all IITs, Chairman of the University Grants Commission, Director General of CSIR, the Chairman of IISc, Director of IISc, Joint Council Secretary of Ministry of Human Resource and Development and three appointees each of the Union Government, AICTE (All India Council for Technical Education).

IIT-D RESEARCHERS TO MAKE LUTYENS' OLD BUILDINGS SUSTAINABLE

https://www.dailypioneer.com/city/iit-d-researchers-to-make-lutyens-old-buildings-sustainable.html

The fact that smart buildings are indispensable to the making of "smart cities", researchers at Indian Institute of Technology (IIT)-Delhi are working on the idea to "transform" age-old structures in the Lutyens' Zone into smart and sustainable infrastructure. Also buildings located in other parts of the national Capital are to be made smart.

At the newly established Centre of Excellence for Sustainable Infrastructure at IIT-D, researchers and experts from different fields are kept on board. Experts from industries, management and from the electrical, mechanical and civil engineering fields are working together for making urban infrastructure sustainable.

The experts are working not only to make the existing infrastructure smart but are also working on how to construct new infrastructure/ buildings as smart and sustainable blocks.

Professor BR Mehta, Dean, Research and Development, IIT-D said old buildings, including Government offices and Ministries located in the heart of national Capital in Lutyen's Zone, are several decades old structures that are no more in tune with the modern standards that requires sustainable and optimal use of energy and resources.

Professor Mehta said smart sensor based lights that automatically switch on or off sensing human presence and even changes its brightness as per the requirement are part of smart buildings. It also includes air-conditioning system that requires no manual interference and automatically adjusts its temperature sensing the outside temperatures. The sustainable building also includes comprehensive integrated water management system, smart communication network etc.

"The machines themselves take decision in such buildings," said Prof Mehta, adding these machines would act as a part of integrated centralised system. He said IIT-D is also researching on making bricks that are to be used in new smart buildings from low carbon material and recycled materials.

"The waste of the Ghazipur landfill sites can be used in making bricks for these buildings," said the Dean. At Centre of Excellence for Sustainable Infrastructure, an IIT-Delhi alumni having an industry and who is interested in smart infrastructure has collaborated and sponsored the research.

Now, a smart fabric to provide UV protection, conserve water

https://www.thehindubusinessline.com/news/now-a-smart-fabric-to-provide-uv-protection-conserve-water/article24659029.ece

Smart looks, smart phones, smart notebooks, and now a smart fabric, which can be worn for seven days without odour and cleans organic stains when in the Sun.

The smartness doesn't end there. A shirt made of the smart fabric also saves the use of a sunscreen product as it protects from Ultra-Violet rays. Ubifab Innovations — which is working on this smart fabric — is the brainchild of Yatee Gupta, an IIT-Delhi alumnus.

'Lack of innovation'

Ubifab Innovations has collaborated with the Bio-tech Department of IIT-Delhi to come out with a smart fabric for apparels and hospitals.

For both, it has raised about ₹64 lakh till now (₹50 lakh from Pfizer and ₹14 lakh from the Design Translational Grant and Design Innovation Fellowship of the government and IIT-Delhi).

"There are two reasons that I entered the segment: Firstly, as compared to other sectors, not much innovation is happening in the textile industry. Secondly, as it is one of the highest employment sectors I wanted to do something that can have a huge impact," said Gupta.

The product is likely to be out by December. The aim is to conserve water, detergent and electricity, he said.

Ubifab Innovations will provide the technology to textile manufacturers and clothing brands for the production of these shirts, to be sold at their respective stores.