NEWS CLIPS

July 14-20, 2018

Highlight of the Week@IITD

Post Institute of Eminence tag, IIT-D to hike fee of PG programmes

July 20, 2018 https://timesofindia.indiatimes.com/home/education/news/post-institute-of-eminence-tag-iit-d-to-hike-fee-of-pg-programmes/articleshow/65048378.cms

Under one of the flagship projects for internationalisation of Indian varsities, MHRD recently released list of six institutes including IIT-Delhi, IIT-Bombay and IISc Bangalore in the public sector and three in private sector and Manipal Academy of Higher Education, BITS Pillani and Jio Institute of Reliance Foundation, in the private sector. These institutes will get greater autonomy in decision making and also receive a grant of Rs 1000 crore over the next five years for developing academic landscape and working towards better global rankings.

IIT, Delhi has extensive plans to improve the functioning of the institute. V Ramgopal Rao, director, IIT-D told Education Timesabout the reformative measures introduced in the institute.

"There will be no changes at the under graduate level, but we are considering several reforms at the PG level which accounts for approximately 60% of our student strength. We are planning a fee hike in the post graduate programmes and have already revised the fee for executive MTech and sponsored PhD starting this academic year," said Rao.

Increasing foreign student intake

The main reason for Indian institutes not making it to top 100 global list, is due to limited seats for foreign students, which is equated to the quality of education imparted. As IoE is part of internationalisation of the institute, IIT-D plans to increase enrolment of foreign students from the present 1% to 25%. "The focus would be to have more students from ASEAN, SAARC , African and gulf nations," said Rao, who plans to have more students in post graduate courses.

"We have limited seats that are just sufficient to cater to the requirement of Indian students. Now there is no choice, if we want to feature in the top 100. We will create a few supernumerary seats for foreign students and improve hostel facilities, as infrastructure is a major concern for foreign students," he added.

To improve the infrastructure, the institute will construct an international student hostel, which will provide accommodation to around 300 students. It is also building an AC hostel that will have a capacity of around 1000.

With IoE funding, scholarships and fellowships would be provided for International students.

International faculty

After the IoE status, the institute can now recruit 25% faculty members from across nationalities that will promote diversity and improve the global ranking, informs Rao. The institute will also work towards improving the student-teacher ratio.

"In the last one year we have been trying to aggressively improve the student-teacher ratio and we now accept applications on a rolling basis and conduct recruitments twice a year," said the director.

Deepening research impact

Starting this year, the institute will hold 'industry day' to showcase its technology readiness levels to gain more industry collaborations that would give an impetus to research in the institute.

"We generate almost Rs 400 cr for sponsored research every year from non-MHRD sources, but the industry component is low as of now. We need to have more industry collaboration. Industries are not coming forward as they perceive us to be only academic institutes where they don't find usable products. This perception will change through 'industry day'," said Rao.

Some of the key areas that the institute will focus on include advanced state-of-art labs, high-end research facilities in nanomaterials, healthcare, energy and environment, and manufacturing, sustainable technology development and high-performance computing system.

July 19

IITs to jointly scout for faculty: Javadekar

https://www.business-standard.com/article/news-ians/iits-to-jointly-scout-for-faculty-javadekar-118071901003_1.html

The IITs have been asked to collectively bargain for faculty hiring from Indians abroad to abridge the teachers' shortage, Parliament was told on Thursday. Replying to a question in the Rajya Sabha on what the government is doing to overcome shortage of faculty, Human Resource Development Minister Prakash Javedekar said that his ministry has asked the IITs to issue rolling advertisements and scout for best faculty from world over. "... our students are best students in the world and real problem is the faculty crunch... Therefore what we have decided and taken action is... all IITs and central Institutes, we have asked that we should scout all over the world for good faculties, with rolling advertisements, continuous invitations for those people who want to come into teaching profession.. they should be encouraged. "Now there'll be IIT Council meeting next month. So what we are doing is, all IITs will jointly go for a common bargaining through a collective effort, and bring good faculty from among NRIs, OCIs... We will give them freedom, freedom to do consultancy also, service of variable pay," Javadekar said. Rolling advertisement are without a deadline and applications are screened as they come. Javedkar was replying to a question from Congress member Jairam Ramesh who pointed out 40 per cent faculty shortage in IIT Delhi, and 38 per cent in IIT Bombay.

IIT JEE 2018- 16% girls make it to IITs

https://economictimes.indiatimes.com/industry/services/education/iit-jee-2018-16-girls-make-it-to-iits/articleshow/65060163.cms

16% girl students have made it to the IITs this year with 1,841 of them admitted across the IITs after the seventh round of seat allocation, as on 19th July.

As per the latest data, a total of 11942 students have been admitted across IITs. While 10101 of them are male students, 1841 women candidates have marked entry in the largely male bastion.

The IITs, nudged by the Human Resource Development (HRD) ministry, had decided on ensuring14% women candidates at the premier engineering institutes in a bid to bring greater gender balance and diversity. 2018, however, has seen a better show with 16% women in the IITs.

The IITs are aiming at a 20% representation of women by 2020, pushing it up incrementally every year.

779 supernumerary seats were earmarked for for women candidates at IITs this year with 113 seats set aside at IIT Kharagpur, 95 seats at IIT-Dhanbad, 79 to IIT-Kanpur, 76 to IITBHU, 68 to IIT-Roorkee, 59 to IIT-Delhi, 58 to IIT-Bombay and 57 to IIT Guwahati. The rule book followed has been to first fill the women quota of seats and then move to gender neutral pool if a woman candidate does not make it in the former.

While there is a welcome increase at 16% this year, the finer details leave much to desire with less than 15 girls ranking in top 500. The larger aim is to ensure that women candidates are encouraged across various courses at the IITs.

IIT Delhi has a master drainage plan for the Capital, but it remains unimplemented

https://www.businessinsider.in/iit-delhi-has-a-master-drainage-plan-for-the-capital-but-it-remains-unimplemented/articleshow/65052551.cms

- **IIT-D had submitted the new drainage plan to the Delhi government 18 months ago.**
- **One of the major suggestions is the revival of the natural drainage basins of the Capital which are fast disappearing.**
- **PWD says that different departments are assigned specific tasks for the "theoretical report" to turn it into a practical project.**

While Delhi is not exactly known for the kind of monsoons Mumbai deals with, water-logging has increasingly become a problem in the Capital. A little rain results in standing water puddles, mounting traffic and a series of issues more. So, what exactly is the problem?

For starters, the Capital is functioning with a drainage plan that is a few decades old. And while a new plan has been formulated, it has not been implemented yet.

In 2012, Sheila Dikshit, the then chief minister of Delhi, announced that a reform in the Capital's drainage plan was needed. Considering that the last drainage plan for the city was designed in 1976, a reform was more than a little necessary.

Dikshit gave IIT Delhi (IIT-D) the task to come up with the new master plan.

IIT-D submitted the new plan 18 months back, however, the Delhi government has still not taken up any of their recommendations. They are apparently facing a bureaucratic maze where "nothing has been done so far" because there are no systems in place to make the changes and the concerned people are disinterested.

And thanks to that, the result is that the Capital comes to a halt after little to moderate rainfall.

Here's how the university came up with their plan

Delhi has 700 km of drainage and IIT-D first scientifically quantified the volume of water that flows in them and then, came up with several ways to increase the volume.

This included rectifying slopes of drains, width adjustments, siltation removal and revival of the natural drainage system which runs across 426.555 km in Delhi.

The natural drainage basins of the Capital are fast disappearing. The 1976 drainage master plan had identified 201 major natural drainage basins. However, 44 of them can not be located anymore and the others are so "permanently" silted that no one knows about their actual dimensions any longer, like the ones in Barapullah and Najafgarh.

IIT-D also pointed out that the increase in the area under paved surfaces have lead to a reduction in water percolation and are resulting in standing dirty water on the roads.

The only immediate solution that they recommended was to completely clean the stormwater and the sewage system.

They recommended that the Delhi Jal Board use super suckers for unclogging the sewer lanes. The draft also mentioned that the stormwater drainage system should be kept free of solid waste.

Fifty percent of Delhi does not segregate between stormwater and sewage since more than half of houses are not even connected to a sewage system and therefore, open drainage is used as a dustbin.

Other recommendations included complete separation of the networks carrying sewage and stormwater, unified framework for drainage with a common plan, laying down of pipes to channel rainwater away from the surface to nearby parks or water bodies and the revival of natural drains.

The Public Works Department (PWD) has argued that it is only a theoretical report and it has been converted to a practical project after different departments were allocated specific tasks to make it happen. The deadline for this theory to practice plan has been set for 2031. And in all this, the Delhi government's department of irrigation and flood control was given the task to work on it with IIT-D. All departments were given the recommendation draft for their inputs.

One problem with the system is the multiplicity of agencies and the absence of a common framework on drainage. There are 10 agencies, including the municipal corporations, PWD, Delhi State Industrial and Infrastructure Development Corporation (DSIIDC), Delhi Development Authority (DDA), and the irrigation and flood control department. With so many authorities to deal with, IIT-D believes that lack of leadership is a major hurdle when it comes to implementing the plan.

And while the plan flails through this bureaucratic maze, Delhi will just have to deal with water-logging till things work out.

July 18

IIT Delhi and Ayurveda Institute sign agreement to give 'scientific validation' to Ayurveda

https://www.indiatoday.in/education-today/news/story/iit-delhi-sign-agreement-scientific-validation-ayurveda-1289116-2018-07-18

An agreement was signed on Tuesday, i.e., July 17 between IIT Delhi and the All India Institute of Ayurveda (AIIA) under which projects would be launched that would aim to give 'scientific validation' to the ancient medical science and integrate it with technology.

Ayush Ministry would be funding the projects.

MEMORANDUM OF UNDERSTANDING

Under the Memorandum of Understanding (MoU), the faculties of IIT Delhi and AIIA will work together in the projects to look at ways to integrate technology with Ayurveda, reported PTI.

The agreement was signed at a conference of the heads of National Ayush Institutes which would brainstorm on ways to induce modernity in Ayurveda.

The MoU is an attempt to give scientific validation to Ayurveda, said IIT Delhi Director V R Rao, who signed the agreement along with AIIA Director Tanuja Nesari.

GIVING SCIENTIFIC VALIDATION TO AYURVEDA

"Ayurveda is often associated with religion, where in reality, they have nothing to do with it. Ayurveda is a science and the agreement signed with IIT Delhi is an attempt to integrate it with technology," he said.

Ayush Minister Shripad Yesso Naik underlined the need to work towards promoting the benefits of Ayurveda to a worldwide audience.

He also expressed hope that the agreement would integrate technology in the Ayurveda sector.

Representatives of IIT, IIM Ahmedabad and AIIMS would also look at ways to improve Ayurveda education in our country.

IIT-Kharagpur, AIIMS ink MoU to boost research programmes

https://timesofindia.indiatimes.com/home/education/news/iit-kharagpur-aiims-ink-mou-to-boost-research-programmes/articleshow/65033142.cms

With an aim to promote interaction and collaboration between two premier institutions of the country - All India Institute of Medical Sciences (AIIMS) and Indian Institute of Technology, Kharagpur (IIT-KGP) - signed a memorandum of understanding here on Tuesday.

"The primary focus is to enhance research outreach programme and medical services amongst faculty members, scientists and students to carry out joint academic and research programmes, joint supervision of masters and doctoral students as well as collaborative research projects," said a statement from AIIMS.

According to it, an understanding was reached between the two institutions for joint academic programmes such as Ph.D, MD-Ph.D, MSc-Ph.D and other courses, coordinated internship programmes for students from AIIMS and IIT-KGP, joint research projects and seeking research funding from external funding agencies.

Some other joint academic programmes to be initiated under the arrangement are conducting short modular courses designed for undergraduate and postgraduate students, exchange of faculty members, use of laboratory facilities and sharing of data, among others.

July 17

60 of top 100 JEE rankers opt to study at IIT-Bombay

https://timesofindia.indiatimes.com/city/mumbai/60-of-top-100-jee-rankers-opt-to-study-at-iit-b/articleshow/65015609.cms

Sixty of the top 100 JEE rankers have opted for IIT-Bombay compared to 67 last year. This year, all the toppers have selected computer science.

Even among faculty looking for positions and postgraduate students, IIT-B has been a preferred choice of campus among the other tech schools. In the last five years, 235 faculty have joined the Powai campus.

“We have a strong international outlook and are located in a great place too,” said IIT-B director Devang Khakhar. In a press briefing outlining what IIT-B plans to achieve under the newly earned Institute of Eminence (IoE) tag, Khakhar said the college wants to broaden its academic offerings and up its research intensity. The plans include introduction of new undergraduate programmes in math, biology, earth science and management; and postgraduate courses in history, political science, film-making, data science and corporate law.
A joint degree with a local public medical school is also on the cards. “We were looking at a joint master-PhD medical programme in which the clinical work could be done at the medical college and research at IIT-B,” said Khakhar. Five world-class labs in nano fabrication and characterization, materials and advanced manufacturing, health sciences and engineering data and information science and sustainable chemical science have been proposed.

While the IoE status will give the institute Rs 1,000 crore over the five years and with all other income like fees, money generated through training, contributions from donations and other projects, IIT-B will have Rs 2,240 crore at its disbursal. The boost in funding will see the lion’s share being set aside for research, followed by infrastructure.

The 100-acre beyond the pipeline will see new construction and the old construction is likely to give way to towers. New hostels for 12,000 students and a married students’ hostel are planned.
“Various support cells have also been planned. Teaching, learning, writing support cell, conference organizing support cell, support for academically weak candidates, have been proposed.” IIT-B aims to increase the number of post-doctorate candidates from 150 to 750, hire 200-250 more faculty from the current 640and set up a special placement cell for PhDs.

IIT Madras Unveils World’s First Remotely Operable Microscope Worth Rs 40 Crore!

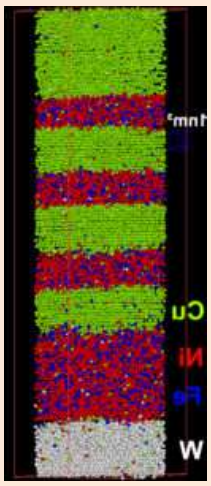
https://www.thebetterindia.com/150786/iit-madras-worlds-first-remotely-operable-microscope-india-technology/

The Atom Probe Microscopes are a kind of 3D microscopes which reconstruct the structure of an object atom-by-atom.

As a child, when I was taught about atoms and molecules, it was a concept my mind couldn’t comprehend. Everything is made of the same molecular components of atoms, and yet they are somehow arranged to be either the solid land we stand on, the water we drink and the air we breathe. It was a lesson in physics I read, but never really understood.

It was not until I came across the images from one of the most advanced telescopes in the world that I grasped what my physics book had feebly tried to explain.

The Atom Probe Microscopes are a kind of 3D microscopes which reconstruct the structure of an object atom-by-atom. Here's an image, or more accurately, a visualisation of Cu/Ni-Fe compound, where each dot represents an atom.



A reconstruction of Cu-NiFe compound analysed by Atom Probe By C.B. Ene – persönlich vom Autor erhalten

We'll get to its incredible working in a bit and see why it's called a 'visualisation' rather than an 'image'.

The microscope is an insight into studying one of the most powerful, yet the smallest things in the universe–atoms–and why they behave the way they do.

Now, various students and institutions across India will have access to the world's first remotely operable **Local Electrode Atom Probe (LEAP)** microscope, right here in Chennai!

Unveiled on the 16th of July at the National Facility of Atom Probe Tomography (NFAPT), the LEAP microscope was commissioned by the Indian Institute of Technology, Madras.

The high-performance microscope was created in collaboration with eight top research institutes in India, and the Rs 40 crore project is determined to enhance the knowledge in the fields of nanotechnology and atomic physics.

During the inauguration, Prof Bhaskar Ramamurthi, Director, IIT Madras, said, "This model, where several institutes come together to fund expensive research equipment is a useful one and can be replicated in institutions across the country. Commercial users paying a fee to use such equipment for their industrial research also make such equipment economically viable."

Calling the LEAP a microscope would be partially incorrect, as the LEAP evaporates the subject it analyses.

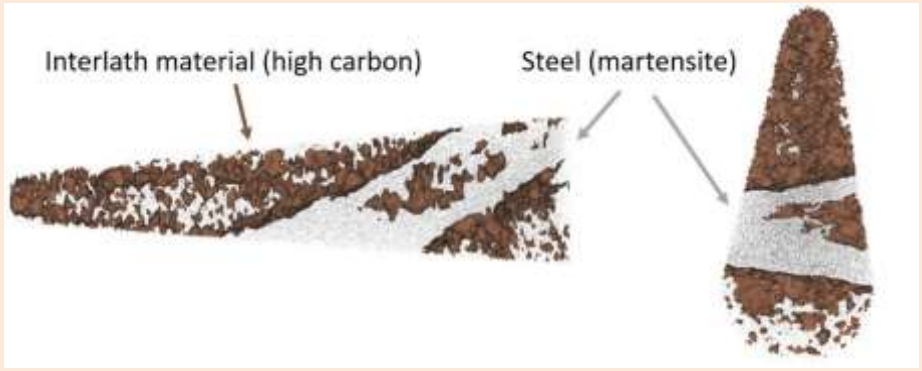
The LEAP 5000 XR at the IIT M.

The basic principle of the LEAP is that a compound is taken and sharpened to an extremely sharp needle-like structure. Then, according to its conductivity, it is either treated with electroplating or subjugated to an ion beam.

It is then hit with high-intensity pulsing lasers, which tear through the composition of the compound, disintegrating it into individual atoms.

The evaporated atoms are then detected with a sensor kept at a known distance from the compound. And the atoms are classified according to a spectrometer.

This data is then used to reconstruct the compound and produce a 3D visualisation. This is why it is called a 'visualisation' rather than an 'image'.



Laser-assisted atom probe tomography of weld region showing carbon and steel composition.

This facility will be able to provide atomic-scale insights into metallic materials, alloys, and semiconductors, all of which can enhance the application in industries such as steel, automobile, energy and various other sectors.

Speaking about the benefits of LEAP, Prof B S Murty, Principal Investigator of the NFAPT Project, IIT Madras, told The New Indian Express, "There are numerous problems that can be resolved using this facility, and I'm really looking forward to the equipment being put to good use by Researchers."

With all this insight into atoms and molecules, let's hope the future generations have a better grasp of physics than we ever did.

IIT Hyderabad to launch three All Course MTech programme

https://telanganatoday.com/iit-hyderabad-launch-three-all-course-mtech-programme

The All Course M.Tech. Programme students will not be entitled to any Fellowship as GATE qualification will not be mandatory.

Indian Institute of Technology, Hyderabad is launching a three All Course M.Tech. Programme in Biomedical, Chemical and Material Science Engineering in August. The deadline for filing online applications is July 21.

While the primary goal of the all course M.Tech. programme is to provide a strong coursework to meet industrial requirements, it also offers a flexible structure to cater to students with a research bent of mind. A student can choose to take only courses and graduate in three semesters or he/she may choose to do a full thesis for 14 months, which is similar to the regular two-year M.Tech. Programme.

The Institute introduced the concept of All Course M.Tech. Programme in 2017 when it started on a limited basis in three specializations – Civil, Electrical and Mechanical Engineering. After seeing the strong response from students last year, Institute decided to add three more specializations this year.

Speaking about the importance of the programme, Prof U B Desai, Director, IITHyderabad, said, "The Indian industries need highly skilled workforce equipped with latest developments and practices, and this we believe can be achieved through an exhaustive set of courses. In addition to the existing specializations in Civil, Electrical and Mechanical Engineering, IIT Hyderabad is going to expand the all course M.Tech. programme to Biomedical, Chemical, and Material Science Engineering, as well, from August 2018."

"The All Course Programme will not be a shortcut to an IIT degree. The All Course programme students, besides taking the normal course load will have to take extra courses in place of the research work done in the second year of the regular two-year M.Tech. Programme. The course rigour will be the same and will have the depth of IIT courses and breadth for skill and practice," he added.

The All Course M.Tech. Programme students will not be entitled to any Fellowship as GATE qualification will not be mandatory. On successful completion of the programme, the student will receive an M.Tech. degree.

The Civil, Mechanical and Electrical departments are also accepting applications. Candidates will be selected through initial shortlisting followed by written test and/or interview. Programme details and online application is available at http://www.iith.ac.in/admissionsAllCrs/login/mtechAdmLoginHome.

July 16

Half-baked education reforms won't work

https://www.thestatesman.com/opinion/half-baked-education-reforms-wont-work-1502661657.html

The Union HRD Ministry had, some months ago, announced that it planned to scrap the University Grants Commission (UGC), the All-India Council for Technical Education (AICTE), and various other higher education regulators and replace them with a single new body named Higher Education Empowerment Regulation Agency (HEERA), which would regulate both technical and non-technical institutions. Recently, however, it announced that instead of HEERA, it is now bringing in Higher Education Commission of India (HEC) by repealing the UGC Act. This initiative appears to address the reform that the Ministry hopes to bring about that will be of critical significance for higher education in India. Word on other regulators is still awaited.

For nearly a decade, concerns have been raised in many quarters about the deteriorating quality of higher education resulting from highly bureaucratic command-and-control based regulatory mechanisms in place akin to the license raj that India witnessed until the economic reform of 1991.

A case in point is that of a 2010 AICTE circular which announced that matters related to admissions, curriculum, fees, and the like would be decided or approved only by an authorised government agency. This circular was challenged in the Supreme Court, and institutions have been functioning since then based on the reprieve granted by the apex court. This matter has now been resolved through a compromise solution, but the core problem issues remain.

Multiple regulatory controls by numerous statutory bodies with their labyrinthine mechanisms have challenged all institutions, preventing an innovative and creative environment from taking root in higher education institutions. To illustrate, to set up a greenfield university one may have to seek various permissions from more than 16 different government departments. Also, regulators prescribing areas in an institution that must be used for toilets shows the level and extent of such micro-regulation. Such ‘deep regulation’ reflects a flaw in the entire oversight system.

In the past, the reports of various committees and commissions have highlighted the deficiencies of regulatory bodies, however, so far nothing substantive has come out of these reports.

Indian institutions/universities hold dismal rankings in the academic world. Currently, the best we have is IIT Delhi, at 172 in the QS World University Rankings 2018. Next is IIT Bombay at 179 and IISc Bangalore at 190. China including Hongkong, for example, has nine universities in this list of top 100. In the Engineering and Technology sub-list, however, IIT Delhi ranks 64 and IIT Bombay is at 68. With major financial support and almost full autonomy without having any external regulator, this is the best international ranking these government institutions have attained in the 60-odd years of their existence.

It is interesting to know that reportedly India filed just about 45,000 patents last year while China filed over a million patents. Further, Chinese (who do not speak English) institutions' publications in refereed journals is about four times that of publications from Indian institutions in European or North American refereed journals. It is reported that about 80 per cent of Chinese students studying abroad return to China while this figure for India stands at about 20 per cent. This can be construed to reflect a poor academic and research environment in India.

With the pincer-like grip of regulators stifling any autonomy, it is anybody's guess what Indian private institutions can achieve when it comes to global standards, for there are a few private institutions giving tough competition to these government institutions. Institutions such as Harvard, Stanford, Kellog, Oxford, MIT, and the like earned their status of "world class" not through government guidelines or regulations, but on their own through the autonomy they enjoyed. Thus, it will do India good to treat private and public institutions at par, as output is the same, and only then to hope for some respectable international standing.

It is high time Indian higher education found its proper moorings at the global level and minimised the outflow of lakhs of Indian students, who leave the country every year in search of quality education.

Based on income levels of academics and research funds available in the high ranking institution countries, it is easy to speculate that India needs a sound financial model that addresses the compensation level of academics and funding to institutions for research. One of the important aspects in bringing up the quality of higher education besides autonomy is the funds for carrying out quality research. Quality in teaching and research must be built through a "pull mechanism" as merely providing funds as a "push mechanism" cannot ensure quality.

Thus, it would be very critical for the education system to foster an ecosystem that builds a "pull" to enforce quality in teaching and research. As a quick recommendation, it can be said that there be full autonomy to all on revenue generation and the compensation given to academics. Further, the research funding is vested with independent apex peer-driven academic councils only and not with a government body.

If the issues holding back such a major shift in policy are not addressed appropriately, the new regulatory environment would reflect a lackadaisical and half-hearted reform and may become yet another case where the problem simply has changed hands. Any reform must be aimed at achieving the desired output, lest it becomes a case of 'Old Wine in a New Bottle'.

IIT researchers just created a silk-based hair follicle that can do away with animal testing for hair-growth drug tests

https://www.indiatoday.in/education-today/gk-current-affairs/story/hair-growth-becomes-reality-with-this-new-study-led-by-scientists-at-iit-d-1287054-2018-07-16

Hair growth becomes reality with this new study led by scientists at IIT-D

Every now and then scientists are coming up with studies on how to combat hair loss but none of those have been proven much of use yet.

In a first, scientists from IIT Delhi developed a silk-based hydrogel that emulates the process of hair growth, an advanced method that may help screen novel drugs for treating hair loss without using animal tests.

WHAT IS NEW ABOUT THIS STUDY?

The flaw lies in the method of research, i.e. testing products on animals.

"The major reason for such inefficiency is there is no suitable human cell-based in vitro models available for drug testing. The currently available anti-alopecia drugs and cosmetics are tested on animals," said Sourabh Ghosh, an associate professor at Indian Institute of Technology (IIT) Delhi.

"But, due to the differences in the immunology and physiology amongst animals and humans drastically limit the success of such drugs," Ghosh told.

"We strongly felt the need to develop an ideal three dimension in vitro model of hair follicle using human cells," he said.

Such models offer tremendous potential as rapid drug and cosmetic testing tools, results of which can be successfully extrapolated in humans.

If successful, such drugs would tend to solve the unending needs of the persons suffering from hair loss thus improving the aesthetic as well as physiological state of the patients, Ghosh said.

WHAT IS THE STUDY ALL ABOUT?

According to a study published in the Journal of Cellular Physiology, the three-dimensional mini organs can mimic the different stages of hair growth in humans.

The team of IIT developers along with ITC Life Sciences and Technology Centre researchers from Bangalore developed the hydrogel by combining a mixture of silk proteins, isolated from silkworm cocoons, and gelatin.

Tyrosinase enzyme was used to develop a stable hydrogel system.

"The system provided an ideal environment to develop a complete 3D model of hair follicle regeneration," Ghosh said.

"Since we have already successfully tested the action of a model hair regeneration drug (minoxidil) in our lab-based hair follicle model, we strongly feel that our hair follicle model is ready to be used by companies to test their products," he said.

Scientists study how the mutation of a gene in bacteria contributes to drug-resistant tuberculosis

https://researchmatters.in/news/scientists-study-how-mutation-gene-bacteria-contributes-drug-resistant-tuberculosis

A collaborative study by researchers from Punjab University, Indian Institute of Technology (IIT) Delhi, Banasthali University, TERI University and the Jawaharlal Nehru University has identified how a particular gene in Mycobacterium tuberculosis, the causative agent of tuberculosis (TB), mutates to avoid the action of antibiotics. They have used computer simulations to study the behaviour of the mutated gene and understand how the mutation affects its interactions and binding with other molecules in the bacteria. The study also details the basis of resistance against the antibiotic streptomycin, observed in three different mutant strains of the bacteria.

Tuberculosis has become the world's deadliest infectious disease with 1.4 million deaths in 2016 worldwide, one-third of which were in India alone. In spite of our prowess in science and technology, we have been unsuccessful in eradicating this disease because the causative bacterium is smarter than we thought. Mycobacterium has found a way to survive even the harshest drugs thrown at it by mutating itself and becoming drug resistant. So far, scientists have identified many genes which have high mutation rates. In this study, published in the Journal of Biomolecular Structure and Dynamics, the researchers have studied how mutations in one such gene, gidB, cause drug resistance towards the antibiotic streptomycin.

Streptomycin kills Mycobacterium by inhibiting the action of a particular ribosomal RNA called 16S rRNA, which is needed to synthesise proteins in bacteria. Streptomycin binds to a region on the 16S rRNA which contains a chemical group known as the methyl group. The gene gidB encodes for an enzyme which, upon binding to the molecule S-adenosyl methionine (SAM), adds this methyl group on the 16S rRNA. Without this action of gidB, streptomycin cannot inhibit the 16S rRNA and kill the bacteria, leading to streptomycin resistance.

In this study, the researchers chose mutations that resulted in changes in the amino acid sequence of gdiB and significantly impacted its binding to SAM. They showed that all the mutant versions of gidB have a significantly lower binding affinity for SAM due to a decrease in the size of the region where SAM binds. Their results also demonstrate that mutant gidBs are more flexible proteins which makes the gidB-SAM complex relatively unstable.

This study is one of the first to understand the molecular basis of streptomycin resistance in TB, caused by mutations in the gidB gene. This work will enable scientists to design and develop drugs and treatments for gidB resistant TB strains.

IIT researchers design unique wound dressing and skin graft

https://www.biospectrumindia.com/news/58/11300/iit-researchers-design-unique-wound-dressing-and-skin-graft.html

The group is currently performing follow up studies using various animal models to examine the efficacy of bioactive constructs.

A group of researchers at the Indian Institute of Technology (IIT) Guwahati has developed bioactive wound dressings and bio-artificial skin by using silkworm silk fibroin as matrix and coating it with recombinant spider silk proteins.

While wound dressings reduced bacterial population by nearly fourfold and showed good anti-biofilm properties, the silk scaffolds seeded with human dermal and epidermal cells led to the development of bio-artificial skin.

If animal trials are also successful, the wound dressing might help in treating chronic and severe wounds such as diabetic foot ulcers, while skin graft might come handy for burn patients.

The group is currently performing follow up studies using various animal models to examine the efficacy of bioactive constructs, to understand the healing properties and study cell-material interactions.

July 14

IIT-D, IIT-B, IISc among six institutions of 'eminence'

https://timesofindia.indiatimes.com/home/education/news/iit-d-iit-b-iisc-among-six-institutions-of-eminence/articleshow/64925090.cms

Government-run IIT-Delhi, IIT-Bombay and Indian Institute of Science, Bangalore were granted the status of "institution of eminence" along with three private players on Monday giving them complete freedom to run their academic and research programmes in a manner which would help make them among the best in the world.

The private institutes which were also granted the status are BITS-Pilani, Manipal Academy of Higher Education (MAHE), Manipal and Jio Institute of Reliance Foundation, Greater Mumbai. A senior HRD official said that another list will be announced soon.

These institutions are now completely free from the regulations of the University Grants Commission.

While the government set a number of maximum 20 institutions (10 government and 10 private) to be given the status, the empowered experts committee (EEC) were not convinced by the 113 institutions' application/ vision statement to offer them the status and thus forwarded lesser number of names to the government.

Among the private players, while MAHE and BITS-Pilani are well established institutions with Manipal celebrating its 25th year, the Reliance Foundation's institution has been shortlisted under the "Greenfield" category, whose vision statement started with "to be the youngest global top 100 universities."

In all 114 institutions (both public and private) applied after the government announced its decision to accord the status to 20 institutions. A great deal of autonomy is accorded with the status and the government institutions will get multi-crore state funding as well.

Along with the tag comes the responsibility to secure a place among the top 500 in a renowned global university ranking framework in the first 10 years after the status is conferred and then eventually be among the top 100. However, the chosen government institutions will now vie for the top 100 as they are already among the top 200 in one or the other global university rankings.

V Ramgopal Rao, director, IIT-Delhi said: "We are already in the top 200. In our proposal we forwarded our strategy to be in the top league globally through three 'I's, -- international linkages such as recruiting foreign faculty and students who are of non-Indian origin, industry linkages and interdisciplinary research. In the interdisciplinary research we want to set up inter-disciplinary teams and also to ensure that whatever we do will help the society," adding that the funding or "the additional grants would help us create the infrastructure and bring our infrastructure to the international level."

Of the 114 institutions, EEC found 113 eligible and of that it forwarded less than 20 names to the government. Head of the EEX, former chief election commissioner N Gopalaswami said: “We sent more than six names to the government. However, we sent only three private institution names and the number of government institutions were more. But the government to keep a parity chose three each, which is fine.”

While no disclosing the exact number the committee recommended to the government, Gopalaswami said that the other institutions had gaps in different areas that needs to be plugged to be considered for the eminence status and which is the reason the EEC could not recommend 20. “In any case the government set 20 as the upper limit and not mandatory,” added Gopalaswami.

The big plus that comes with the tag is that these institutions are free of all UGC regulations, they can enrol upto 30% foreign students, are free to fix fees, for both domestic and foreign students as per internal policies, and would be exempted from any fee regulations which may be there in force.

Besides, they shall have the freedom to offer courses within a programme, as well as to offer degrees in newer areas, after approval of its governing council without consulting the UGC. They will also have complete flexibility in fixing of curriculum and syllabus, with no UGC mandated curriculum structure and have the freedom to offer online courses as part of its programmes (subject to a limit of 20% of any programme) and may recruit faculty from India and abroad with complete autonomy in the appointment of faculty, promotions etc.

The greenfield category is for those with a “a completely new proposal to establish an institution of eminence deemed to be university” and the “sponsoring organisation for the greenfield institution should have members whose total net worth is at least rupees five thousand crore collectively.”

IIT Bombay to develop world-class labs, launch skill-based courses under Institute of Eminence tag

https://www.moneycontrol.com/news/business/economy/iit-bombay-to-develop-world-class-labs-launch-skill-based-courses-under-institute-of-eminence-tag-2726201.html

The Institutes of Eminence are proposed to have greater autonomy in comparison to other higher education institutions

Indian Institute of Technology (IIT) Bombay is looking to set up five world-class labs, enhance skill-based courses and have more postgraduate programmes in areas like history, film-making, and political science. IIT Bombay has been classified as an ‘Institute of Eminence’ (IoE) by the Ministry of Human Resource Development.

Under this plan, institutes like IIT Bombay with the IoE tag will receive government grants of Rs 1,000 crore over the next five years.

#	Actvity / parameter	Year 1	Year 2	Year 3	Year 4	Year 5
1	Academics	New UG/PG programs and courses				
			Inter-disciplinary centres and Joint MD-PhD			
2	Research	World-class labs				
		Increased intake of PhD students				
			Jump in high quality output			
		Enhanced research investment				
3	Faculty recruitment	Increased intake of Post-Doctoral Fellows				
		New faculty housing				
4	Student scholarships	Scholarships to meritorious international students				
5	Collaborations and partnerships	Joint research projects				
			International faculty			
		Distinguished professors				
6	World class infrastructure	International hostel				
				Upgrade student activity centre		
7	Outreach and visibility	Enhanced conferences and conference mobility support				
8	Sustainability	Building a robust corpus				

As part of its plan under this programme, IIT Bombay will introduce 100 new courses by 2022 and also have 10 percent of new admissions from other countries by 2022.

"There will be a major curricular revision with an aim to broaden education, enhance skill-based courses and liberal arts foundation," the institute said in its plan document. The aim is also to create a mechanism (Senate sub-committee) for identification of new programmes/areas.

Focus Areas (Investments in Rs crore)	Year 1	Year 2	Year 3	Year 4	Year 5	Total
1. Research	338	400	368	254	59	1419
2. Faculty Recruitment	31	43	49	50	44	217
3. Scholarships to Meritorious Indian and Foreign Graduate Students	2	5	9	14	20	50
4. Collaborations and Partnerships	35	29	19	21	23	127
5. World Class Infrastructure	30	50	72	40	40	232
6. Outreach and Visibility	42	32	32	32	32	170
7. Sustainability	5	5	5	5	5	25
Total	483	564	554	416	223	2240

They have also proposed a realignment of existing programmes based on special needs of the city (possibly finance, commerce, entertainment), regional challenges, and faculty expertise.

IIT Bombay will also initiate new undergraduate programmes in existing academic entities and initiate joint academic programmes in healthcare in collaboration with medical colleges and research institutions.

Expected Sources (for first five years) (In Crore): **IIT Bombay**

1. Expected Funds to be received from Central Govt: 669 Cr
2. Expected Funds to be received from State Govt: NIL
3. Fees to be collected from domestic students: 78 Cr
4. Fees to be collected from foreign students : 1 Cr
5. Interest from corpus fund, if any: 130 Cr
6. Earnings from consultancy: included in 11 other earnings
7. Support from Alumni: included in 10 Donations
8. Project based funding: 605 Cr
9. International funding: included in 8
10. Donations: 75 Cr
11. Other earnings from training, workshops, etc: 7 Cr
12. Other please specify: 75 Cr
13. Institute of Eminence Grant: 200 Cr
14. Total:_____1840_____crore.

The existing infrastructure will also be upgraded and new hostels will be set up to accommodate 12,000 students. For academically weak students, additional support will be provided by the institute.

IIT Bombay	Expected Sources (Beyond five years) (In Crore)					
Financial Year	2022-23	2023-24	2024-25	2025-26	2026-27	Average
1. Funds Received from Central Govt:	838	905	977	1055	1139	983
2. Funds Received from State Govt:						
3. Fees collected from students (Indian):	116	134	154	177	203	157
4. Fees collected from foreign students (if any):	2	2	3	3	4	3
5. Interest from corpus fund, if any: (Investment income)	172	189	208	229	252	210
6. Earnings from consultancy (@)						
7. Resource Mobilization by the university (#)						
8. International Funding (%)						
9. Project based funding National and International	902	1038	1193	1372	1578	1217
10. Industry funding ($)						
11. Donations	155	201	261	340	441	280
12. Support from alumni:(&)						
13. Other earnings from training, workshops, etc: (@)	38	77	154	307	614	238
14. Other (please specify):	84	87	90	94	98	90
Total (Crore)	2,306	2,632	3,040	3,577	4,330	3177

For the first five years, the central government funding will be the largest source of funds for IIT Bombay followed by the IoE grant. Beyond that, project-based national and international funds will be used by IIT Bombay to grow and develop the institute.

The IoEs are proposed to have greater autonomy in comparison to other higher education institutions. For instance, they will be free to decide their fee for domestic and foreign students and have a flexible course duration and structure. Moreover, their academic collaborations with foreign institutions will be exempt from approvals of government or UGC except institutions based in MEA and MHA's list of negative countries.

All seats at IIT-Delhi filled up ahead of time

https://timesofindia.indiatimes.com/city/delhi/all-seats-at-iit-delhi-filled-up-ahead-of-time/articleshow/64981680.cms

IIT Delhi has filled up all its seats by admitting 912 students at the end of its fourth counselling session on Friday.

The counselling session began on July 11 after two days of no admissions when the process was stopped temporarily because of a Madras high court directive. A single-judge bench of Madras high court had ordered the institute to suspend its seat allocation process. IIT then filed an appeal challenging the order, which came in their favour.

The institute decided to keep the number of counselling rounds for a student exactly the same as earlier, so they decided to work in a 12-hour shift from 8am to 8pm to cater to each potential candidate.

The institute has 851 regular seats and 59 supernumerary ones, taking the total to 910. This year, admissions have exceeded by two seats. “We have three more rounds of counselling sessions left,” said Aditya Mittal, professor and chairman of Joint Entrance Examination-Advanced at IIT Delhi.

Numerous parents and candidates had requested for the same timings as they had finalised their travel bookings according to the start of sessions at different IITs. “We also took cognisance of our academic session that will start as scheduled earlier,” Mittal said.

Mittal said that the parents and candidates are reaching the campus well before 8am and “cooperating with the institute” for the sessions. This has made the process smooth.

While 912 students have got admission, there are 525 who have opted for “freeze” or “slide” of their seats.

A seat is frozen when candidates fix their allocated academic programme at an IIT, while slide is when a candidate is open to accept any academic programme at the particular IIT of his/her choice. The three remaining counselling sessions will be held till July 18 and candidates have till 5pm on July 17 to withdraw their applications.

IIT Bombay, Four Other IITs Feature in Top 100 of Golden Age University Rankings 2018

https://www.ndtv.com/education/times-golden-age-university-rankings-2018-iit-bombay-iit-kharagpur-iit-delhi-iit-kanpur-iit-madras-f-1882725

The Golden Age ranking casts spotlight on the best universities established for more than 50 years, but less than 80 years.

Five Indian educational institutions found their place in the top 100 of the Times Higher Education "Golden Age" ranking 2018. Universities established between 1945 and 1967 considered for this category. Indian Institute of Technology (IIT) Bombay, IIT Kharagpur, IIT Delhi, IIT Kanpur and IIT Madras have been featured in top 100. The ranking takes its name from what was a Golden Age in global higher education, characterised by rapid university expansion and increasing investment in research, said a statement from Times Higher Education.

In the total Golden Age University Rankings 2018, India is well represented with 11 institutions owing to the creation of multiple technology universities in the country during this time period.

IIT Bombay is ranked 57th while IIT Kharagpur is ranked 76th followed by IIT Delhi (79), IIT Kanpur (88) and IIT Madras (=98).

Among the top 5 Indian institutes, IIT Bombay was established in 1958, IIT Kharagpur was established in 1951, IIT Delhi was established in 1961, IIT Kanpur was established in 1959 and IIT Madras was established in 1959.

Among these institutes, IIT Bombay and IIT Delhi were granted 'Institutes of eminence' tag by Government of India recently.

The universities were measured across their "core missions" - teaching, research, citations, international outlook and industry income. University of California, San Diego, tops the list.

Australian National University, Chinese University of Hong, Seoul National University and Monash University also featured in the top five.

IIT Kharagpur has also figured in the top 50 list of The Emerging Economies University Rankings 2018 that includes only institutions in countries classified as "advanced emerging", "secondary emerging" or "frontier" economies.

IIT KGP was placed 45th in the list that includes more than 350 universities from 42 countries across four continents. Peking University of China tops the list, the release said.

In its fifth year, the ranking has parted with the 'BRICS' acronym and has used a different title to recognise the strength and potential of a diverse range of emerging economies. The institutions of these countries were judged on several parameters -- teaching, research, knowledge transfer and international outlook of Emerging Economies University Rankings 2018.

Research Must Be Priority of Universities: IIT Prof

http://www.theshillongtimes.com/2018/07/14/research-must-be-priority-of-universities-iit-prof/

“Ph.D epitomizes the concept of higher education and modern research university. Ideas about the PhD are inseparable from those about the university and its perceived purpose and function in contemporary society. Therefore, research and innovation must be the priority for all universities”.

This was stated here today by Prof PK Das, Department of Computer Science and Engineering, IIT Guwahati. Prof Das was addressing about 70 PhD scholars at the orientation programme organized by the University of Science & Technology, Meghalaya. Another key speaker in the programme was Prof Desmond Kharmawphlang, Department of Cultural and Creative Studies, NEHU, Shillong.

Speaking to the scholars’ gathering, Prof Das said, “Research is something which happens spontaneously. One must be extremely thorough and consistent during research. A PhD scholar has to own his or her work—having thorough understanding of the subject is very important. Any PhD research output must be of some kind of help to the community and society.”

Prof Desmond Kharmawphlang, a renowned folklorist from NEHU, said that a thoroughfare mind is very crucial for research. Addressing the scholars he said, “Observe everything and absorb everything. Do not ignore the micro details. PhD calls for a lot of obligations, commitment and dedication. Everything good in life comes with a cost and doing PhD demands such commitment with great seriousness.”

While Dr PK Goswami, Vice Chancellor of USTM welcomed the invited speakers and PhD scholars present, Dr Alaka Sarma, Pro Vice Chancellor of the University delivered the vote of thanks. The orientation programme also included address by Deans of different schools of studies in USTM and briefing of PhD rules and regulations by Dr A Barbhuiya, Academic Registrar of the University.