Highlights of the Week@IITD

For EWS students, IIT-Delhi to increase seats by 12.5% this year

January 31, 2019 https://indianexpress.com/article/education/for-ews-students-iit-delhi-to-increase-seats-by-12-5-this-year-5561953/

An order by the Ministry of Human Resource Development has directed all central educational institutions to introduce the 10 per cent quota from the new academic session starting in July.

The Indian Institute of Technology Delhi (IIT-D) has decided to increase its seats by 12.5 per cent this academic year, and by the same percentage in the following year, to implement the economically weaker quota for upper castes, as ordered by the Ministry of Human Resource Development.

The order has directed all central educational institutions to introduce the 10 per cent quota from the new academic session starting in July, and finalise their implementation plan latest by March 31.

"We will increase seats by 12.5 per cent this year and the remaining the next year. We are supposed to submit our financial requirements regarding this to the government, which we are in the process of doing. The communication has to go to the central JEE coordinating office too, as they need to know the exact number of seats (which will increase)," IIT-D Director V Ramgopal Rao told The Indian Express.

He said the major requirement, in terms of funds, will be needed for hostels, and that classroom space will not be an issue.

"We roughly have 10,000 students and need to take in 2,500 more students. Our large hostels have a capacity for about 800 students. So we require at least three more hostels. But we don't have space for new hostels, so we will need to demolish our 50-year-old hostels, which have about 300 seats and make larger hostels," said Rao.

He added that the institute was going by the MHRD directive and would think about the constitutionality of upper caste reservations only when the Supreme Court takes a decision in that regard.

Helmets must on IIT-Delhi campus from Friday

January 31, 2019 https://timesofindia.indiatimes.com/city/delhi/helmets-must-on-iit-d-campus-from-tomorrow/articleshow/67763950.cms

From Friday, no two-wheeler rider will be allowed to enter IIT-Delhi campus without wearing a helmet or headgear. Even those living inside the campus will get warnings twice for not wearing helmet and if they still don't mend their ways, their stickers will be confiscated.

In a circular, the premier institute has said, "From February 1, 2019 onwards all two-wheeler riders will be issued a waning ticket. After two such warnings, sticker of the vehicle will be confiscated and such vehicles will not be allowed to park in our designated parking areas. Similarly, people/ visitors coming to the campus without helmet will not be permitted to enter." Only vehicles with stickers are allowed inside the campus.

Highlighting that there has been increase in vehicle ownership in the campus and that casual approach of riders could put lives at risk, the institute has appealed through the circular to convey the new norms to the dependents of those living inside the campus, vendors and friends.

In recent years, some of the private firms have also started practising to enforce the habit of wearing helmet by linking attendance of employees with the compliance of law. As per Motor Vehicle Act, it's mandatory for all two-wheeler riders including the pillion riders to wear helmet, which can help save lives in case of an accident.

According to the latest UN Motorcycle Helmet Study, motorcyclists are 26 times more likely to die in road crash than drivers of passenger cars. Wearing an appropriate helmet improves their chances of survival by 42% and helps avoid 69% of injuries to riders.

Wearing helmet and seatbelts have been recognised as the cheapest and most effective intervention to reduce road deaths across the globe.

Fellowship hike will be announced today or tomorrow: VijayRaghavan

January 29, 2019 https://www.thehindu.com/sci-tech/fellowship-hike-will-be-announced-today-or-tomorrow-vijayraghavan/article26118323.ece

"Glitches can come from issues at any of the steps in the pathways and a mechanism to monitor and correct is being put in place by DST"

Prof. K. VijayRaghavan, Principal Scientific Adviser to the Government of India in an email to The Hindu confirmed that fellowship hike will be announced today or tomorrow. The Finance Ministry has already passed the order based on the recommendation by the Department of Science and Technology (DST).

"DST and finance Ministry will announce levels of hike [today or tomorrow]," Prof. VijayRaghavan says.

Prof. Vijayaraghavan who was delivering the foundation day lecture at IIT Delhi yesterday had met a group of researcher scholars and assured that the fellowship hike would be made in a day or two.

On January 17, 2019, Prof. VijayRaghavan had told me that DST had meetings of all science funding agencies and conveyed its recommendation to the Finance Ministry. The Finance Ministry, which takes a decision on this, has already done so. "The official order is now awaited," he had said.

Prof. VijayRaghavan has also said: "DST will review the [fellowship] situation on a yearly basis. This will allow steady and calibrated changes and any rationalisation as necessary."

Procedural issues

"As far as DST is concerned everything has been done from our side. We even brought all the stakeholders (funding agencies) on board so the outcome is applicable to all research scholars. From our end nothing is pending. The Finance Ministry is now looking at it. My hope is it will be officially notified as soon as possible," Prof. Ashutosh Sharma, Secretary, DST had told me on January 17.

For the last six months, research scholars from across the country have been demanding 80% hike in their fellowship and regular disbursal of fellowship. Representatives had met Prof. Sharma and Prof. VijayRaghavan in end October and November 2018 respectively. They had also met Minister for Science & Technology Dr. Harsh Vardhan and Minister of Human Resource Development Prakash Javadekar in end December.

Currently, junior research fellows (JRFs) get Rs.25,000 per month while senior research fellows (SRFs) get Rs.28,000 per month. The last revision in fellowship was in October 2014. There are nearly one lakh PhD scholars in India.

Prof. Sharma did say that there were procedural issues in releasing the fellowship on time and this "will be sorted out soon". "We want to strengthen the process for timely release of scholarship," Prof. Sharma had said.

"DST is coordinating a mechanism to ensure speedy and regular release of fellowship. Glitches can come from issues at any of the steps in the pathways and a mechanism to monitor and correct is being put in place by DST," Prof. Vijay Raghavan had said.

IIT alumni association adopts Delhi villages

January 28, 2019 https://www.hindustantimes.com/delhi-news/iit-alumni-association-adopts-delhi-villages/story-WV45WSF78mNtd9LWw0SRxK.html

The members of the alumni association made the announcement on Saturday, saying that the initiative will not be limited to the infrastructure development of these villages

The alumni association of IIT-Delhi has adopted some villages in Delhi under a cleanliness initiative.

The alumni association of Indian Institute of Technology, Delhi has adopted a west Delhi village, Mitraon, and 25 other village clusters in Nazafgarh as a part of the Centre's Village Adoption Programme under Swachchta Initiative (VAPUSI).

The members of the alumni association made the announcement on Saturday, saying that the initiative will not be limited to the infrastructure development of these villages. "Though the Mitraon village lies in the heart of the national Capital, it is still away from the development of the city. The IIT Delhi alumni association (IITAA) will first start working on the education facilities in the area and help setting up libraries and collective reading room facilities. Then we are planning to move into three key areas – tree plantation, waste segregation and sewage disposal. We will also rope in the local NGOs," Atul Bal, president of the association, said.

The other areas where the IITAA members are intend to work in these villages include setting up of a biogas plant, drip irrigation, encouraging organic farming and launching of a mobile application for the farmers residing in the localities. "All activities in this Initiative are process driven. Many of such processes have already been established. However being a new initiative, a lot many processes are evolving as a result of undertaking grass root level works with a purpose," he said in a statement.

Among the 25 village clusters, which are adopted by the IITAA, are Kair, Surera, Khaira, Khaira Davar, Jaffarpur, Mundela, Mundela Kalan, Bakarwala, Isapur, Kajipur, Dhansa, Samaspur, Ujwa, Malikpur, Daryapur, Jhujhli, Rawata, Daurala, Ghumen Hera, Khad Khadi, Hasanpur, Mitraon, Surakhpur, Pandwala and Galibpur.

The association is planning to reach out other alumni for monetary help. "We are soon going to sensitise our own alumnus to come out and start contributing to this great cause," he said.

Sanjeev Sanghi, dean, alumni affairs at the IIT-D, said that the alumni association is taking several such initiatives of late. "The association has also started a mentoring programme for the existing students wherein they introduce them with startups companies and give insights of the industry. IIT-D will support this village adoption initiative taken by them," he said.

February 1

IIT-Jodhpur partners with NVIDIA for cutting edge AI research

https://www.dnaindia.com/jaipur/report-iit-jodhpur-partners-with-nvidia-for-cutting-edge-ai-research-2714541

The Indian Institute of Technology, Jodhpur, (IIT-J) announced the launch of the 'Centre for next Generation AI Research – AINEXT' and signed a memorandum of Understanding (MoU) with Nvidia as a key technology and computing platform partner.

On behalf of IITJ, Professor Santanu Chaudhury, Director, IITJ said, "Our institute is driven by its commitment to excel in next generation technology development and research. AI is now ubiquitous, and we must begin to entrust it with increasingly greater responsibility in AI's expanding capabilities."

This unique AINEXT centre will pioneer research to develop next generation of AI Systems, which will transform computers from tools into problem solving partners. The work that will be undertaken at IIT Jodhpur will enable AI systems to explain their actions and to acquire and understand and reason with common sense knowledge.

The centre's computing infrastructure will be built on the premise to scale out AI without scaling on the complexity like the Nvidia DGX-2 Systems, the world's most powerful AI System for the most complex AI challenges, said institute officials.

This unprecedented venture is targeted to accelerate the research and development of next generation AI systems to immerse AI in every field, every device in Healthcare, Agriculture, Public Safety, Social good, IOT among other sectors, Chaudhary said.

January 31

Conference on cancer at IIT-M today

http://www.newindianexpress.com/cities/chennai/2019/jan/31/conference-on-cancer-at-iit-m-today-1932322.html

The event is host to a panel of international and national subject experts, who will speak on important challenges and developments in the field.

The Indian Institute of Technology-Madras (IIT-M), in collaboration with Bhupat and Jyoti Mehta School of Biosciences and The Mehta Family Foundation, US, is organising an international conference on 'Cancer Precision Medicine and Personalized Therapeutics' at the IIT-M campus on Thursday.

The event is host to a panel of international and national subject experts, who will speak on important challenges and developments in the field.

The three-day conference will bring together scientists from IITs, Indian Institute of Science and Educational Research (IISERs) and Indian Institute of Science (IISc) as well as International research community, to discuss innovation in cancer genomics, drug development, target selection and the impact of new discoveries in personalized treatment strategies.

Despite the untiring efforts in the fight against cancer, understanding tumour heterogeneity has been the greatest challenge in developing a universal treatment strategy.

January 30

Government hikes research fellowship by 24 per cent after months-long protest, scholars to go on hunger strike

https://www.financialexpress.com/education-2/government-hikes-research-fellowship-by-24-per-cent-after-months-long-protest-scholars-to-go-on-hunger-strike/1459553/

After months-long protest, the Department of Science and Technology (DST) has increased the stipend offered to research scholars by almost 24 per cent.

Protest at IIT BHU

Research scholars from across the country including from elite institutes like Indian Institute of Technology (IIT) and Indian Institute of Science (IISc) were protesting for a hike in the monthly stipend that they are awarded. After months-long protest, the Department of Science and Technology (DST) has increased the stipend offered to research scholars by almost 24 per cent.

During the protests, they were demanding a hike to Rs 50,000 and Rs 56,000 for JRF and SRFs respectively. However, as per the revised rate, the Senior research fellows (SRF) will be getting Rs 35,000 monthly, while the Junior Research Fellows (JRF) will be getting Rs 31,000 from January 1, 2019, onwards. Previously the JRF and SRFs used to get Rs 25,000 and Rs 28,000 respectively as their monthly stipend.

Nikhil Gupta, the national representative and coordinator of research scholars of India, currently working for the Centre of Bio-Medical Research, an IIT Madras alumni, told Financial Express Online, "We are about to launch a nation-wide protest in a few days, a few representatives will go on an indefinite hunger strike – until now we were doing a relay hunger strike."

He wrote on Facebook, "Research Scholars of India, through the scientific community, is taking action to continue to protest against the possible implications of legislation on Fellowship Hike issue going through the Ministry of Human Resources and Development & Ministry of Finance, Government of India."

In December, the DST secretary Asutosh Sharma met a group of research scholars from across the country and promised a reasonable hike in their stipend along with timely disbursal of funds. "He even promised to set up a committee to look after the scholars' problems – but even that is not taken care of on this Official memorandum," Gupta added.

This hike that the department offered will only be applicable for the scholars working on research and development programmes of the central government.

However, the researchers still do not have any claims to DA, HRA, bonus or retirement benefit, moreover, the department might as well reconsider the number of scholarships offered for "budgetary outlays".

A JRF is promoted to be an SRF after two years, and an external assessment. To continue receiving that SRF stipend the scholar needs to go through annual assessments. The last hike that the research fellows got was in 2014 at the rate of 56 per cent – they were offered to choose between the 56 per cent hike or a lump sum Rs 9,000 hike. They were also offered the same this year, however, they got a hike of Rs 6,000, which translates to 24 percent.

7th Pay Commission: Allowances hiked for teachers and equivalent academic cadre

https://www.businesstoday.in/current/economy-politics/7th-pay-commission-allowances-hiked-teachers-academic-cadre/story/315016.html

The move is likely to benefit 30,000 teaching and equivalent staff in central universities and another 5,500 in deemed-to-be universities.

Last week it was the turn of central government employees handling cash and treasury and railway employees to celebrate a hike in allowances courtesy the 7th Pay Commission and now academicians have reason to cheer. The much-awaited orders on revision of allowances and special allowances for teachers and equivalent academic cadre, Registrars, Finance Officers and Controller of Examinations in Central Universities and Colleges were issued by the Ministry of Human Resource Development (MHRD) yesterday. This also included centrally-funded deemed-to-be universities.

"The orders come into force with immediate effect. The revised special allowance per month for Vice Chancellor, Pro-Vice Chancellor, Principal in PG [post-graduate] College and Principal in UG [under-graduate] College are Rs 11,250, Rs 9,000, Rs 6,750 & Rs 4,500, respectively," tweeted Union HRD Minister Prakash Javadekar.

According to him the move is likely to benefit 30,000 teaching and equivalent staff in central universities and another 5,500 in deemed-to-be universities. "This will serve as a benchmark for 7 lakh teachers in State Universities," he added in another tweet.

Less than a fortnight ago, Javadekar had announced that the government would extend the benefits of the 7th Central Pay Commission to the teachers and other academic staff of the state government and government-aided technical institution in the country. This would directly benefit a total of 29,264 teachers and other academic staff, and would cost the Centre Rs 1,241.78 crore. "Besides, about 3.5 lakh teachers and other academic staff of private colleges/ institutions within the purview of AICTE will also benefit from the approval," he had added.

There's good news for guest faculty members, too. On Monday, the University Grants Commission (UGC) issued a circular announcing that the rates of honorarium of guest faculty in universities and colleges would be hiked with immediate effect to Rs 1,500 per lecture, subject to a ceiling of Rs 50,000 per month.

IIT Guwahati Scientists Invented Paper-Based Biosensor for Confirmation of Milk Pasteurization

http://theindiasaga.com/social-sector/iit-guwahati-scientists-invented-paper-based-biosensor-for-confirmation-of-milk-pasteurization

A research group from the Indian Institute of Technology, Guwahati, have developed a paper-based kit that can evaluate the pasteurization of milk based. The developed kit can discriminate the pasteurized and raw milk based on the determination of intrinsic indicator present in milk. The duo team, led by Prof. Pranjal Chandra, department of biosciences and bioengineering at Indian Institute of Technology, Guwahati with Ph.D. research scholar Kuldeep Mahato has published the recent innovation in biosensor and bioelectronics journal.

As per the authors "Milk being a widely consumed stable food, its safety has become a prime concern to consumers due to the inevitable microbial invasion making it a pool for the various type

of food born infections. Therefore, milk is boiled in households and before consumption and in dairies a rapid heat & cold shock is given technically called pasteurization for killing the microbial forms. The available confirmatory for this the tests are based on various high-end instruments which limits the test in many ways, thus, the requirement of low cost easy to handle kit based detection is of the need of the hour especially in the third world countries". Prof. Chandra the lead author also added that "in context to the third world countries the availability of quality controls are rare or nonfunctioning at the point of collections. Thus, using our developed portable testing kit, the reportedly greater mass spoilage of milk at collection points due to the microbial invasion can be prevented from such quality deteriorations".

To develop the kit researchers used ordinary filter paper and cut to small disc using the office punch machine. Thereafter, the paper discs were chemically impregnated with the sensing probe consisting the antibody of the ALP an indicator molecule for the pasteurization and target molecule in this case. When ALP comes into contact with the probe, it turns white paper disc into a colored one.

As per the authors ", the paper was functionalized with the 4-carboxybenzene diazonium solution followed by chemical treatment which eventually exposes the COOH flanking groups. On which the NH2 groups of the anti-ALP was coupled by means of covalent bioconjugation techniques on the paper surface. When a drop of milk is dispensed on the paper disc, the present ALP reacts with probes, gives the color change. The appearance of the greenish blue color at the paper sensor was then captured using smartphone camera and the image was processes using the digital image colorimetric technique. The technique tells the correlation of the ALP content on the basis of color change. Using this generated data from standard conditions, one can estimate the amount of ALP in the milk and tell the state of freshness.

" The kit have been assessed using the milk of different sources collected from the nearby villages and the commercial outlets form the IIT-G campus following the spike-recovery method of analysis" said Prof. Chandra. In most cases, close to 94% of the ALP have been determined using the probe. The authors also confirmed the greenish blue color appearance is explicitly due to the ALP, not due to the interference of vitamins, other proteins, and minerals in the milk. The handy kit is merely of 2 square centimeter in size made up of the paper biosensor and the support of cellulose acetate film. The biosensor is covered from outside using the O-ring and the centrally holed cellulose acetate circular lid, which prevent the probe from the mechanical distortion. Since ALP is also tested in various body fluids, the kit can also be utilized in clinics. Fabrication in the laboratory at present costs around Rs. 80 to Rs 125 per kit and could come down when mass manufactured, researchers said.

"As of now, our developed kit is capable of discriminating the raw from pasteurized milk based on the ALP determination, which is correlated with the present microbial forms or microbial contamination in milk. We are considering that in future we will address the determination of chemical-based contaminations in milk as well," Kuldeep Mahato, a Ph.D. scholar, who worked on this project along with Prof. Chandra told during an interaction.

IIT SCIENTISTS CREATE DRUG TO TREAT COMMON STOMACH BUG THAT CAUSES GASTRIC DISTRESS

HTTPS://WWW.FIRSTPOST.COM/TECH/SCIENCE/IIT-SCIENTISTS-CREATE-DRUG-TO-TREAT-COMMON-STOMACH-BUG-THAT-CAUSES-GASTRIC-DISTRESS-5992411.HTML

In India, the burden of this infection is almost 80% in rural areas due to poor hygiene.

Scientists at the Indian Institute of Technology, Gandhinagar have synthesized a new compound that may help treat stomach infections caused by common bacteria, Helicobacter pylori (H. pylori).

The inhibitor is based on an aromatic chemical compound, indole, and may help in treating H. pylori infection which is a cause for gastritis, peptic ulcers and stomach cancers, according to researchers.

The new inhibitor synthesized by researchers targets a gene known as Inosine-5'-monophosphate dehydrogenase (IMPDH) involved in the nucleotide synthesis of H. pylori. In initial studies, the inhibitor has been found to be better than earlier known benzimidazole-based inhibitor which is poorly metabolized in the liver and is therefore not a potent drug.

For the study, scientists isolated IMPDH gene from H. Pylori and expressed its protein. They then tested the new inhibitor on the protein. The inhibitor was found to restrict its enzyme activity. The study also showed that the inhibitor specifically targets the Inosine-5'-monophosphate dehydrogenase protein of the bacterium and not humans making it safe for human use.

"Validating IMPDH as a drug target for H. pylori infection would be our ultimate goal. We also want to make the medicine affordable. We are collaborating with clinicians and animal model experts to take this study further," said Dr Sivapriya Kirubakaran, Assistant Professor at IIT-Gandhinagar and leader of research team while speaking to *India Science Wire*.

It is estimated that about of half of the global population may be infected with H. pylori.

While the symptoms of this infection mostly go unnoticed, it is a cause of diseases like gastritis and ulcers. In India, the burden of this infection is almost 80% in rural areas due to poor hygiene and healthcare facilities. Currently, the infection is treated either with clarithromycin-based therapy or by a mix of this therapy and antibiotics.

Besides Dr Kirubakaran, the study team included Kapil Juvale, Gayathri Purushothaman, Vijay Singh, Althaf Shaik, Srimadhavi Ravi and Vijay Thiruvenkatam. The study has been paper published in journal Scientific Reports.

Malarial drug inhibits Zika virus growth, IIT Mandi team finds

https://www.thehindu.com/sci-tech/science/malarial-drug-inhibits-zika-virus-growth-iit-mandi-team-finds/article26126896.ece

Dr. Rajanish Giri from IIT Mandi (right)

The drug hydroxychloroquine or HCQ, was able to significantly reduce viral load in placental cells

Researchers at Indian Institute of Technology (IIT) Mandi have found a drug hydroxychloroquine or HCQ, that is already being used for treating malaria to be effective in inhibiting Zika virus growth and replication.

Also, the drug was able to significantly reduce viral load in placental cells. Zika virus is known to damage and kill the placental cells (which act as a barrier to protect the developing foetus from disease-causing organisms) leading to foetal infection. The drug might therefore help in preventing vertical transmission of Zika virus from the placenta to the foetus.

Since the HCQ drug is already approved for use in pregnancy, positive results in human trials will mean that it can be given to pregnant women infected with Zika to reduce the chances of vertical transmission. Some foetuses infected with Zika virus are born with a small head (microcephaly).

As the Zika virus protease structure is already available in the literature, a team led by Dr. Rajanish Giri from IIT Mandi identified the druggable site on the protease enzyme. The Zika protease enzyme is a good target for drug action as inhibition of the protease stops Zika virus growth. The team then screened FDA-approved drugs and identified five compounds based on their binding to the active site of the enzyme. The malarial drug HCQ was one of the five compounds selected.

Besides binding to the active site of the protease enzyme, the binding of the malarial drug to the active site was found to be stable. Based on these results, in vitro tests were carried out using purified viral enzyme to assess the ability of the drug to inhibit enzyme activity. "We found 92 microMolar of the drug was sufficient to inhibit the enzyme activity," says Dr. Giri.

"Inhibiting the protease activity leads to stoppage of virus replication and survival. This will eventually result in reducing the viral load," says Ankur Kumar from IIT Mandi and first author of a paper published in the journal ACS Omega.

In an earlier study, Prof. Indira U. Mysorekar from the Department of Obstetrics and Gynaecology, Washington University School of Medicine, used the malarial drug in Zika-infected animals to test its effectiveness in reducing vertical transmission. The drug significantly reduced the viral load in the placenta and foetus of the mice.

"The HCQ drug acts on Zika virus through multiple mechanisms. We exploited the autophagy pathway to reduce the viral load in placental cells. The drug also inhibits the protease enzyme activity to limit its growth," says Prof. Mysorekar, who is a co-author of the latest paper.

The placenta acts as a barrier and prevents any pathogens from reaching the foetus through a form of garbage recycling system that removes some components of cells, termed autophagy. When the placenta is infected with Zika virus, the autophagy gets ramped up thus allowing the virus to enter the foetus. But in the presence of the drug, the ramping up of autophagy is prevented thus inhibiting the virus from infecting the foetus. Through in vitroand mice studies, Prof. Mysorekar's team had earlier shown how the drug prevents the Zika virus, which has infected the placental cells, from infecting the foetus.

Besides autophagy, the drug inhibits Zika infection of placental cells by binding to the enzyme. "The drug modulating the autophagy process is important in placental cells, while inhibiting the protease enzyme activity could help stop the growth and kill the virus in other sites of the body," says Prof. Mysorekar.

The team will carry out more tests to determine the efficacy of the drug in humans. It is currently working to find the optimal dosage required to kill the virus in humans. Since the malarial drug is already approved for use in humans, pregnant women included, the team is planning to carry out trials on humans to assess the ability of the drug to reduce viral load and cut vertical transmission. "The HCQ drug is readily available, cheap and safe for use in pregnant women. So it should be used in humans if the trials provide encouraging results," says Prof. Mysorekar.

This floating device by IIT Roorkee claims to generate electricity from river surface

https://www.indiatoday.in/education-today/gk-current-affairs/story/iit-roorkee-device-electricity-flowing-water-1442692-2019-01-30

A team at Indian Institute of Technology (IIT) Roorkee is testing a prototype that harnesses energy from flowing surface water.

Scientists at IIT Roorkee are testing a floating device that can generate electricity from flowing surface water of rivers and streams, paving the way for an alternative source of renewable energy.

Traditional hydropower plants require the construction of large-scale dams, which have significant ecological and environmental consequences. To counter this, a team at the Indian Institute of Technology (IIT) Roorkee is testing a prototype that harnesses energy from flowing surface water.

Alternative source of renewable energy

"In traditional dams, water falling from a height is used to turn turbines," said RP Saini, principle investigator of the project.

"We are instead using the velocity of the flowing river to turn a turbine and generate power. Flowing water can generate a hundred times more power than wind of same velocity," added Saini.

Hydro-kinetic technology has significant advantages over other types of renewable energy.

The researchers said that while there are many types of turbines currently under development, installing them in a flowing river is a tedious task.

"That is where more research is needed. Keeping that in view we have taken up this project to develop a prototype so that the installation (of such turbines) can be standardised in the flowing canals and rivers," Saini said.

Problem with solar energy

"The interest of government since the last 3-4 years has been on solar energy more because it is a modular system that can be installed in four months and sunlight is available everywhere," said Sunil Kumar Singal, head of the Alternate Hydro Energy Centre (AHEC) at IIT Roorkee.

"But, the problem with solar energy at present is that on cloudy days and during the nights, we would need an alternate source as currently, energy storage systems are not efficient enough," he said.

Prototype installed for testing

The prototype, developed in collaboration with Delhi-based Maclec Technical Project laboratory, has been installed in the Upper Ganga Canal in Roorkee, Uttarakhand for testing.

"In this canal, water discharge is almost constant throughout the year. Thus we have near ideal conditions for the purpose of testing," said Saini.

"We need to find out whether the system will be effective and what further improvements can be made," Singal added.

The prototype has been developed after over two years of research. Tethered to cement blocks built on the banks of the canal, the turbine floats on the surface of the river.

The power generation capacity of the prototype being tested may not be comparable to traditional hydropower stations, but the system has the potential to overcome several environmental challenges associated with large-scale hydropower dams.

IIT-Patna, AIIMS sign pact to boost research

https://timesofindia.indiatimes.com/city/patna/iit-p-aiims-p-sign-pact-to-boost research/articleshow/67744055.cms

The Indian Institute of Technology (IIT)-Patna and the All India Institute of Medical Sciences (AIIMS)-Patna on Tuesday signed a memorandum of understanding (MoU) to facilitate collaboration on education, research, product innovation, medical services and technology commercialization between the two institutions.

The MoU was signed by Pushpak Bhattacharya and Dr Prabhat Kumar Singh, directors of IIT-P and AIIMS-P, respectively, in presence of deans and heads from the two institutes, the IIT-P's professor-incharge (public relations) Arijit Mondal said in a press statement.

The MoU will foster collaborative work between researchers of both institutes on topics of mutual interest, development of intellectual property, software or hardware and other deliverables as applicable to meet the defined objectives.

"The collaboration will give impetus to research, especially in the areas of medical technology and medical electronics," Bhattacharya said.

Dr Singh said, "I am delighted to sign this agreement with IIT-P, which renews our partnership for five years. On behalf of AIIMS-P, I would like to extend our sincere support to this collaboration."

Pramod Kumar Tiwari, professor incharge of incubation centre at IIT-P, said, "The institute has established centres to promote innovation and support startup companies trying to commercialize technology. The IIT-P incubation centre is one of the most active incubators of eastern India focusing on electronic system design and manufacturing (ESDM) and medical electronics (ME). The centre will benefit from this techno-medical collaboration."

Tiwari added the collaboration will open the doors for researchers and students from both institutes to access the knowhow, resources and state-of-the-art infrastructure of the other institutes. "IIT-P labs, including those of incubation centre, such as prototyping, testing and measurement, mechanical packaging and product prototyping will be accessible to teams from AIIMS-P," he said.

Tiwari said research teams from IIT-P and startups incubated at incubation centre of the institute will benefit from AIIMS-P knowhow and receive guidance and support from the institute to define

products, carry out trials and obtain regulatory clearance for commercial launch of the medical technology developed by them. He added the joint teams can also explore the possibility of converting their research into products through incubation centre at IIT-P, which is open for innovators and entrepreneurs from ESDM and ME.

IIT Gandhinagar aims to become the Principal Resource Centre for Sustainable Development in India

http://indiaeducationdiary.in/iit-gandhinagar-aims-become-principal-resource-centre-sustainable-development-india/

Indian Institute of Technology Gandhinagar aims to become the principal resource centre for sustainable development in India with the launch of Dr Kiran C Patel Centre for Sustainable Development, which will advance local and global solutions through cutting-edge interdisciplinary research.

It will also develop a national and global network of leading experts and researchers on sustainability and undertake research on water, pollution, waste management, energy, natural resources and climate change.

The Centre will research sustainability and related challenges of high societal importance and promote cost-effective and sustainable solutions through its strong outreach and technology-transfer programmes. It was launched today (30th January 2019) and has been set up with a generous endowment from philanthropist Dr Kiran C Patel, a distinguished cardiologist based in Florida, USA.

The Centre will undertake technology transfer of sustainable solutions to NGOs, local governments and industry and collaborate with policy makers and industry to identify and solve sustainability challenges. It will also promote startups on sustainability with IITGN's Entrepreneurship Cell by providing Seed Grants.

Speaking about this centre, Prof Sudhir K Jain, Director, IIT Gandhinagar, said, "Dr. Patel's exceptional generosity for an institution with which he has no earlier connection touches us deeply and inspires us greatly. The gift will enable our faculty and students to work on developing practical solutions to major sustainability challenges through an integration of advanced research, traditional knowledge and field understanding."

IIT Gandhinagar campus is the first campus in India to receive the 5 star GRIHA LD rating for its ecofriendly and sustainable design. The IITGN campus is considered a 'living laboratory' on sustainability.

The Centre will strive to address major sustainability challenges and translate them into prototypes, patents, and publications. It will also establish an effective technology-transfer programme for sustainability solutions in the field and promote networking and collaboration among scholars, policy makers, industry, non-profit organizations and other stakeholders on sustainability

Addressing the inaugural function, Dr Kiran C Patel said, "The single major challenge facing the next generation will be lack of clean air, natural resources and non-toxic environment. It is imperative

that IITs of the world develop the intellectual capital to create a sustainable planet earth that can ensure the well-being of ten plus billion people residing in this world in the coming decades."

The Focus Areas of Dr Kiran C Patel Centre for Sustainable Development include,

Ø Water (Desalination, Safe Drinking Water Production, Water Resource Research, River Flow)

Ø Pollution & Waste Management (Air, Water and Soil Pollution, Waste Segregation, Treatment and Recycling, Waste to Resource Techniques)

Ø Energy (Renewable energy, Efficiency and Energy Management)

Ø Climate Change (Extreme Events, Prediction and Simulation)

Ø Natural Resources, Wildlife & Ecosystems (Biodiversity, Conservation, Ecotourism, Traditional Ecological Knowledge, Environmental Humanities)

The Centre will also support research on sustainability at IIT Gandhinagar, and identify, prioritize and lead sustainability related thrust areas. It will explore and promote collaboration opportunities, catalyze research proposals on sustainability on campus and develop vibrant Visiting Faculty and student research programmes.

IIT Gandhinagar has undertaken several Sustainable Campus Initiatives. The campus treats all its sewage in an environmental friendly sewage treatment plant and recycles all treated water for horticultural operations. It captures rooftop rainwater in four underground Jal Mandaps of 50 lakh litres storage capacity. It has implemented passive cooling systems and integrated a 500 KW capacity solar power plant into its electric system.

The Centre will also undertake outreach and advocacy initiatives. It will coordinate training programs and workshops on sustainable development for professionals in industry, NGOs, and public officials and promote sustainable solutions in the public and private sphere, disseminate conceptual and practical knowledge, training materials and create awareness on sustainability.

The Centre also collaborates with global organizations and universities on its programs. The Centre's faculties have collaborations with colleagues at Columbia University, USA, Purdue University, USA, United Nations Development Programme, United Nations Environment Programme, Royal Netherlands Meteorological Institute, Royal University of Bhutan and Sonnen, Germany, among many others. The Centre offers summer research internships open to students nationwide on various sustainability themes every year.

UGC seeks clarification on fresh recommendations for Institute of Eminence status

https://indianexpress.com/article/education/ugc-seeks-clarification-on-fresh-recommendations-for-institute-of-eminence-status-5560378/

This is the second meeting of the Commission that has remained inconclusive on the fresh recommendations made by the Empowered Expert CThe Empowered Expert Committee on December 7 last year had identified an additional 19 contenders for the Institutes of Eminence tag.

In what could cause further delay in the announcement of a fresh list of Institutes of Eminence (IoE), the University Grants Commission (UGC) decided Tuesday to seek clarification from the government on whether an additional 10 institutions, over and above the original mandate of 10 public and 10 private IoEs, can be considered for the status.

The Empowered Expert Committee (EEC) on December 7 last year had identified an additional 19 contenders for the IoE tag. With this, the total number of universities and institutes recommended by EEC for the eminence tag went up to 30, of which six — three public and three private — have been officially announced by the government.

This is the second meeting of the Commission that has remained inconclusive on the fresh recommendations made by the EEC. The last meeting was held on December 10, 2018. The stipulated 15-day period within which UGC should have forwarded EEC's recommendations to the government lapsed on December 22.

"Further decision can be taken after receiving clarification from the government," said a source, who did not wish to be identified.

EEC's latest recommendation includes two more greenfield institutions like Reliance's Jio University — Satya Bharti University backed by Satya Bharti Foundation of Bharti Airtel group and Krea University in Andhra Pradesh.

That apart, under the private category, the EEC had suggested names of Amrita Vishwa Vidyapeetham in Coimbatore, VIT in Vellore, Jamia Hamdard University in New Delhi, Shiv Nadar University, Azim Premji University, Ashoka University, Kalinga Institute of Industrial Technology in Bhubaneswar, O.P. Jindal Global University, Indian Institute for Human Settlements and Institute of Public Health Sciences in Telangana.

Under the public category, Banaras Hindu University, Tezpur University, Savithribai Phule Pune University, University of Hyderabad, Aligarh Muslim University, Panjab University and Andhra University are in the fray to be selected as IoEs

The above names are in addition to the 11 institutes recommended by the EEC in July this year. Of them, only IIT Bombay, IIT Delhi, IISc Bangalore, BITS Pilani, Manipal University and Jio University had bagged the IoE status. The remaining — IIT Madras, IIT Kharagpur, Jadhavpur University, Delhi University and Anna University — were expected to be awarded the status last month. However, both meetings of UGC since then have been inconclusive.

While the Committee has urged the government to award the eminence tag to all 30 of its suggestions, it's unclear whether the government will agree to this.

The Union Cabinet had approved UGC's 'Institutions of Eminence Deemed to be Universities Regulations 2017', in August, 2017. The regulations 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.

The private IoEs can also come up as greenfield ventures, provided the sponsoring organisation submits a convincing perspective plan for 15 years.

The IoEs are proposed to have greater autonomy compared 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.

The 10 government institutions, in addition to autonomy, will also get Rs 1,000 crore each from the HRD Ministry to achieve world-class status. The government will offer no financial assistance to private institutions.

The announcement of the first six IoEs had snowballed into a political controversy with the Opposition objecting to the choice of a yet-to-be-established institution that is Reliance Foundation's Jio University.

January 29

IITs to Start 5% EWS Quota from This Academic Session, IIMs Seek Exemption: Report

https://www.news18.com/news/india/iits-to-start-5-ews-quota-from-this-academic-session-iims-seek-exemption-report-2017225.html

The Ministry of Human Resources Development has instructed the centrally funded institutes to provide details of seats, along with other logistical information, such as the financial requirements – in a report that must be submitted before January 31.

The Indian Institutes of Technology are likely to implement the quota for economically weaker sections provided under the recently passed Constitution (124th Amendment) Bill 2019 from the upcoming academic session.

The institutes, however, plan to implement the quota in a phased manner, and have proposed giving 5 per cent reservation in the 2019-20 academic session. This will be expanded to 10 per cent reservation from next year, the Times of India reported.

On the other hand, Indian Institutes of Management (IIMs), especially the recently opened branches, are likely to seek exemption from implementing the EWS quota this year.

The Ministry of Human Resources Development has instructed the centrally funded institutes to provide details of seats, along with other logistical information, such as the financial requirements – in a report that must be submitted before January 31.

V Ramgopal, the director of IIT-Delhi, has confirmed to TOI that the EWS quota is set to be implemented in a phased manner from this year. The details, he said, will be submitted to the HRD ministry in a report.

The IIMs have said they are not sure if they will be able to roll out the plan in the upcoming academic session.

"The new IIMs will find it difficult as our infrastructure is still not in place and any additional numbers may not be feasible. But we are deliberating on a number of issues including financial and infrastructure requirement," the director of one of the new IIMs told the daily.

Meanwhile, there is another issue that has been cited by the IIMs, which is the absence of the option of an "economically weaker section" box on the CAT application form.

Ministry of HRD organized Pariksha Pe Charcha 2.0 programme in New Delhi

https://www.devdiscourse.com/article/education/350696-ministry-of-hrd-organized-pariksha-pe-charcha-20-programme-in-new-delhi

While introducing the programme, Union Minister for Human Resource Development Shri Prakash Javadekar said that the Ministry of HRD has taken a number of initiatives to provide holistic education.

The interaction lasted for over ninety minutes and the Prime Minister took questions from 18 participants including students, teachers and parents.

Prime Minister, Shri Narendra Modi interacted with Students, Teachers and Parents from India and abroad in this year's edition of Pariksha Pe Charcha 2.0 held at Talkatora Stadium, New Delhi today. Students were thrilled after receiving valuable tips from the Prime Minister regarding beating stress in every walk of life. The Ministry of Human Resource Development of Government of India organized the Pariksha Pe Charcha 2.0 programme.

While introducing the programme, Union Minister for Human Resource Development Shri Prakash Javadekar said that the Ministry of HRD has taken a number of initiatives to provide holistic education. He said that with a vision of Sabko Shiksha Acchi Shiksha, the Government is committed to providing quality education to the students. He also informed that 12-14 crore persons will be watching the programme live. Union Minister for Science & Technology & Earth Sciences Dr Harsh Vardhan and Union Minister of State for Human Resource Development Dr Satya Pal Singh have also

graced the occasion. Smt. Rina Ray, Secretary, DoSE&L and other senior officials from MHRD were also present during the event.

The interaction lasted for over ninety minutes and the Prime Minister took questions from 18 participants including students, teachers and parents.

Arrangements were made for live telecast of the programme in all Government and CBSE Schools and Higher Education Institutions/Colleges of the Country and abroad. 11cr students in 10.5 lakh government schools watched the programme live. Additionally, 1.97 cr students of 2.65 lakh CBSE affiliated schools in the country; and 6.2 lakh students and teachers in 226 CBSE affiliated schools abroad also witnessed the interaction live.

This year, students from 24 States/ UTs participated in the programme. A total of 2200 students were present at Talkatora Stadium, out of which 1700 school students were outstation while 500 students were from the Delhi-NCR region. The students from Delhi included 200 students of private schools while 500 college students from across the country also participated in the programme today at Talkatora Stadium.

An online competition was organized from 7th January to 17th January 2019, for students of classes 9 to 12, graduate and undergraduate college students, their parents and their teachers for selecting all those who will interact with the Prime Minister this year. They participated through the www.mygov.in website on the following themes:-

On the MyGov portal, total 1, 02,173 took part in the online contest and the details of the same were forwarded to all the States and UTs where the final selection of 2000 participants was made by a selection committee formed at each State/UT level.

For the first time, Indian students residing abroad from countries like Bangladesh, Ethiopia, Indonesia, Russia, Japan, Libya, Kenya, Malaysia, Oman, Tanzania, Thailand, UAE, Ghana, Liberia Nigeria, Iran, Nepal, Doha, Kuwait, Saudi Arabia, and Singapore were connected to the programme live.

This year a spectacular cultural programme of 10 minutes was organized, in which the winning students (e.g. Dancers/Singers etc) from Kala Utsav contest, their parents and teachers performed. A differently abled student of class XI, Rini Bhattacharjee from West Bengal enthralled the audience with her performance on the keyboard with the help of her feet only.

A short film on initiatives taken by the Ministry of HRD was shown highlighting the steps taken since last years' Pariksha Par Charcha, to reduce exam related stress.

Increase number of institutes of eminence from 20 to 30: Expert panel

https://www.indiatoday.in/education-today/news/story/expert-panel-recommends-to-increasing-number-of-institutes-of-eminence-from-20-to-30-1441931-2019-01-29

Two private institutes and seven public institutes have made it to the recommended list of The Empowered Expert Committee for Selecting Institutions of Eminence.

Two private institutes and seven public institutes have made it to the recommended list of The Empowered Expert Committee for Selecting Institutions of Eminence.

"The Empowered Expert Committee (EEC) for selecting Institutions of Eminence (IOEs), constituted by the HRD Ministry has suggested an increase in the number of such institutes from 20 to 30," said, a senior official.

The University Grants Commission (UGC) had set up a committee of four members, last year in February. This committee was given with the responsibility to conduct the appraisal of applications for shortlisting 20 IOEs.

About the IOE projects

The IOE project for globalisation of Indian campuses and creating world class universities was rolled out by the Ministry of Human Resource Development (MHRD) in September 2017.

According to a senior HRD Ministry official, the EEC has recommended to increase the number of Institutions of Eminence to 30. However, the recommendations are yet to be considered by the UGC.

Union Minister of State for HRD Satya Pal Singh had also informed Parliament about the committee's recommendations earlier this month.

Public institutes granted with the eminence

After the first report of recommendations from the committee, the HRD Ministry in June last year granted the eminence tag to three public institutions including Indian Institute of Science (IISc), Bangalore; Indian Institute of Technology (IIT) Delhi, and Bombay.

Manipal Academy of Higher Education, BITS Pilani and Jio Institute by Reliance Foundation were granted the IOE tag in the private sector.

The EEC has finally come up with 19 recommended names for the IOE status in December, which included two public universities and seven private universities. Also, five names from the two categories to be kept in reserve list.

List of public institutions recommended:
Banaras Hindu University (BHU)
Tezpur University,
Savithribai Phule Pune University,
University of Hyderabad,
Aligarh Muslim University,
Panjab University,
Andhra University.

List of private collages recommended names from Public sector are:
Sharda University,
Ashoka University,
Amrita Vishwa Vidyapeetham,

VIT Vellore,
Jamia Hamdard University,
Azim Premji University,
Krea University,
Kalinga Institute of Industrial Technology,
OP Jindal Global University,
Indian Institute for Human Settlements,
Institute of Public Health Sciences,
Satya Bharti University.

January 28

By 2020, IIT-M is expected to have 700-strong faculty and 2000 courses

https://timesofindia.indiatimes.com/home/education/news/by-2020-iit-m-is-expected-to-have-700-strong-faculty-and-2000-courses/articleshow/67722688.cms

As IIT Madras enters its diamond jubilee year, director Bhaskar Ramamurthi talks about the institute's plans implement its Strategic Vision

From an institute that was set up in 1959 in a forested site of about 633 acres with West German assistance and only 10 departments, the Indian Institute of Technology, Madras (IIT-M) has come a long way. Today, the Institute has over 8000 students enrolled in 16 departments offering BTech, MTech, MSc, MS, MBA, MA and PhD degrees.

"IIT Madras is now in the middle year of its Strategic Plan period 2014-2020 and well on track to meet the targets set out in the Vision Document, says director Bhaskar Ramamurthi. "Be it curriculum modernisation, faculty recruitment, funded research, innovation or entrepreneurship, and fund raising, we are going to meet the objectives," he adds.

Research emphasis

The broad goals of the Strategic Plan 2014-2020 focusses on research with a view to nurturing large groups of faculty working on transformational technologies in areas such as water, energy, healthcare, housing and education. "The institute was always a research university and that was how the Indian Institutes of Technology (IITs) were envisaged. In the initial decades, the relative focus

was more on undergraduate education and the quantity of research was lower although the quality was always high.

Now the focus is as much on research, industry and international collaborations as also on undergraduate education," Ramamurthi says. He however feels the level of international students and faculty should improve. "We do have a lot of good collaborations with international researchers/faculty but not enough of them are on campus," he adds.

Calling for industry intervention in academia, Ramamurthi says IIT-M has already set in motion the creation of a powerful ecosystem jointly with the industry and in that the IIT Madras Research Park is acting as a catalyst "It is the institute's vision to help Indian companies through the Research Park to become globally competitive technologically and to enable a significant fraction of the incubates (from amongst the institute's faculty and students) each year to become successful," Ramamurthi says.

Course programmes

By 2020, the institute is expected to have 7000 faculty members teaching 2000 new courses. While the core courses will define the stream opted for by the student at the time of admission, they can choose from a wide variety of courses for completing their degrees. The electives, if properly chosen, will define the specific domain knowledge and skills of the graduating student.

Students now and then

While talking about IIT-M's journey across the years and students then and now, Ramamurthi says, "Students over the decades have always been bright and creative. The focus of students, from 1970s to 1990s, used to be on higher education and academic career. Today, the focus is on entrepreneurship while a large number of startups are coming up from both the students and faculty of IIT Madras." As for the teaching pedagogy, his observation is, "I think good teaching remains the same irrespective of whether one uses chalk or computer. However, in recent years, faculty are using more technological and pedagogical tools for students to share and access information, do group learning, learn from teachers elsewhere in the world through internet courses. But, the teacher-student interaction remains the high point of our education system," Ramamurthi adds.

IIT Kgp is bringing together expert stakeholders in modern healthcare
https://timesofindia.indiatimes.com/home/education/news/iit-kgp-is-bringing-together-expert-stakeholders-in-modern-healthcare/articleshowprint/67720472.cms

Healthcare system in India has been evolving in a rapid phase. The goal of modern medicine is no longer confined to the mere treatment of sickness. Equally important is disease prevention and improvement of the basic quality of life. This requires knowledge sharing and collaborations among medical profession, architects, administrators, academics and management consultants to help them put forward their view points on the future of healthcare in India.

IIT Kharagpur is bringing together these expert stakeholders in modern healthcare for deliberations on the multidimensional aspects of health which could serve as the basis of health care planning in India. "Modern medicine today is also seeing an unprecedented confluence of medical and engineering education and research. Assisted technology has not only enhanced learning and skill development in medicine but also added new dimensions to hospital planning and management. In this symposium 'Hospital Planning and Beyond' we will discuss threadbare the issues facing modern day healthcare," said Subrata Chattopadhyay, Avinash Gupta chair professor at the department Architecture and Regional Planning, IIT Kharagpur.

Subrata Gupta, secretary of Urban Development and Municipal Affairs will be present to address the regulatory framework for healthcare and health pathway. The other areas to be discussed on are patient centric approach to healthcare design and management with focus on affordable healthcare, the emerging issue of occupational lifestyle diseases, healthcare awareness through self-monitoring and tracking and step by step hospital design. Some of the key speakers and panellists are Sameer Mehta, director projects, Hosmac India Pvt. Ltd., Anjan Gupta, design principal/proprietor, Anjan Gupta Architects, Dipendra K. Mitra, head, department of Transplant & Immunology, AIIMS, Delhi, Arnab Gupta, director, Saroj Gupta Cancer Centre & Research Institute and several faculty experts from IIT Kharagpur.

The group will further focus on emergence of artificial intelligence in healthcare through medical diagnostics and technology. Suman Chakraborty from the School of Medical Science and Technology will highlight on the potential of AI in paving the way away from symptomatic treatment to medical consultation based on personal medical history and common medical knowledge, genomics based health diagnosis, virtual caregiving.

The initiative has been undertaken under the Avinash Gupta Chair Professorship supported by alumnus Ron Gupta, President of IIT KGP Foundation, USA. The event will be organized on January 28.

IIT Gandhinagar's effort to promote Indian cultural traditions
https://timesofindia.indiatimes.com/life-style/spotlight/iit-gandhinagars-effort-to-promote-indian-cultural-traditions/articleshow/67722729.cms

In an effort to promote Indian cultural traditions in its curriculum, Indian Institute of Technology Gandhinagar (IITGN) is establishing four endowed chairs in Sanskrit, Urdu, Classical Indian Music, and Indian Performing Arts.The Institute will introduce full-time and part-time teachers as well as bring eminent scholars and performers in each of the four areas.

IITGN director Prof Sudhir Jain said, "Exposing students to the diverse forms of India's cultural expressions is one of the distinctive features of an IIT Gandhinagar's education. The Chairs in Cultural Expressions underscore IITGN's commitment to critical thinking, creativity and appreciation of India's cultural heritage in its educational programs."

In addition to offering courses in Sanskrit, Urdu, Classical Indian Music, and Indian Performing Arts, the Chairs will enable the Institute to bring eminent scholars as visiting professors or Scholars-in-

residence for lectures, seminars and co-curricular programs in each of the four areas. The Institute is currently raising endowments to support each of the four chairs.