



## NEWS CLIPS

August 18-24, 2018

### Highlight of the Week@IITD

#### **‘We suffer because we are not global enough in our outlook’**

August 20, 2018 <https://www.thehindu.com/news/cities/Delhi/we-suffer-because-we-are-not-global-enough-in-our-outlook/article24733254.ece>



***IIT-D scores 90 out of 100 in research parameters and in all IITs, about 5,000 faculty positions lie vacant: IIT-D Director***

Recruiting foreign faculty and making the brightest minds pursue research are the way ahead for IITs and India, says IIT Delhi Director V. Ramgopal Rao

**Why is it that a premier institution like IIT Delhi, among other top institutions, is not ranked high in global rankings?**

In the QS rankings, out of the five parameters, in three — foreign faculty, foreign students and faculty-student ratio — we get zero. One parameter in which we score well is the research impact.

There, we get almost 90 out of 100.

The fifth parameter is perception. There again we do not do well as we get 40-50 out of 100. In the one parameter that is measurable — where papers, citation, etc., count — we score 90. We need to improve on the parameters that are pulling our rank down.

There are institutions in the US that score much below us in research — say 60 or so — but make up very significantly in perception. They do very well in foreign faculty and foreign students too.

Even in faculty-student ratio, they do very well. So, obviously, they are ahead of us.

So, how can institutions like IIT Delhi lift their rankings?

In research, IIT Delhi ranks 38-39 in QS rankings. That is measurable. We suffer because we are not global enough in our outlook.

**Do you think having foreign faculty and foreign students is the key?**

Having foreign faculty here will also improve our faculty-student ratio. The government is yet to allow government jobs for a foreigner.

At the most, you can give a contract position but not a regular one. In academic jobs, if someone comes from abroad, they need to take PhD students.

PhD is typically for four years.

If someone has a contract position, the first year we can allow him to take a PhD student.

In the second year, we say that we do not know whether your contract will be renewed or not. So, they cannot take care of PhD students.

They do not even get research projects because it is not known whether they will stay or quit.

So, without long-term stability, they cannot build a research profile.

In US universities, they take everyone on a contract basis but based on performance they make them regular in a period of time.

**Will you be allowed to take regular foreign faculty with Institute of Eminence status?**

That is what we are asking. Can 25-% of our regular faculty be foreign faculty? Right now, we have 300 faculty positions vacant at IIT Delhi which is about 40% of our faculty strength.

In all IITs, there are about 5,000 faculty positions vacant. We are not finding good people.

If we open it up for foreigners, many good people will start applying.

That will change perception and improve our faculty-student ratio.

Once somebody comes from these countries, students also begin to apply. Our problem is being too much Indian.

With that, you cannot aspire for a global ranking.

**Earlier there was a perception that the core of IIT is B Tech. Are IITs now becoming research institutions?**

In older IITs, that transition has taken 5-7 years ago. Today in IIT Delhi, we have 2900 PhD students, which is almost 30% of our student strength.

This is also why our research ranking is going up.

## **Should the brightest minds look towards research rather than just an undergraduate degree?**

The reason for our faculty shortage problem is that our brightest students are not pursuing a career in research. After B.Tech, they do a finance job, do an MBA... They are looking at pay packages but not in the long-term... That is one thing that needs to change. That was what we wanted to correct by using the Prime Minister's research fellowship scheme. But we did not receive the kind of response that we wanted. In the first year, we could have admitted 1,000 students but could admit only 134. We are doing one more round of admissions in December and hoping to admit more students. Look at India's startup culture. Many are by B.Techs. They are in a hurry to start a company. But with a B. Tech degree, you can do an e-commerce company or some aggregator thing where the business model is the innovation. But if you want to have a startup in artificial intelligence or nanotechnology, B. Tech students will not be able to do anything as they require a deeper knowledge of a specific field. So, our startups tend to be shallow in nature.

## **IIT-Delhi to put PhD projects on display to impress 300 'employers'**

August 18, 2018 <https://timesofindia.indiatimes.com/city/delhi/iit-delhi-to-put-phd-projects-on-display-to-impress-300-employers/articleshow/65445670.cms>



In a first, IIT-Delhi will showcase research projects of its scholars at its upcoming industry day on September 22 to woo around 300 potential employers. Due to the nature of the academic cycle, there is no organised placement programme at the IITs for PhDs. IIT-D — one of the three government institutions to get the Institution of Eminence status last month — also plans to execute major expansion activities, both in terms of research and residential facilities. In the pipeline are creation of a facility for international married students and raising Rs 2,500 crore from alumni and in sponsored research funding.

V Ramgopal Rao, director, IIT-D, in an exclusive interaction with TOI, said industries were now focusing on specialisation and recruiting more PhD scholars than ever before. Rao also spoke about the need for greater autonomy to the IITs, in line with the IIMs, if they had to compete with top institutions globally, especially when it came to drawing foreign students and faculty.

He said that while the first edition of the industry day saw 150 participants, the number of representatives was expected double this year. "This day offers a glimpse of what's happening in the institute. We want to establish a process for our PhD students to work with industries and find jobs.

We have seen an almost 200% increase in research funding from non-MHRD sources since the first event last year.”

Rao said: “In terms of research, we are at the 39th position in the global university rankings. Of the five parameters, we have got zero in three — foreign faculty, foreign students and faculty-student ratio. The two places where we have got some marks are research output — the quality of research we do — and perception. So, if we need to take the IITs into the top-50s, we need to start doing well on these three parameters too. We need to recruit more faculty and that is again linked to foreign faculty.”

At present, foreign students constitute just 1% of the total intake. The institute aims to take this figure to 10% (1,000 students) in the next three to four years. “The only thing stopping us today from admitting more students from other countries is the lack of hostel facilities. We are starting the construction of two hostels — one for boys (950 students) and another for girls (450 students) — which will ease the accommodation problem to some extent. We are also building a hostel of 100 flats to attract foreign students,” Rao said.

**Aug 24**

### **IIT-Ropar is zero liquid discharge campus now**

<https://www.tribuneindia.com/news/chandigarh/iit-ropar-is-zero-liquid-discharge-campus-now/641984.html>

The IIT Ropar spread in 466. 69 acres will not discharge any sewage or untreated water through storm water drains. IIT Ropar Director S K Das said the total water requirement for the institute is 434 kilo litre (kl) everyday, and of which 201 kl is met through the tube-well, and the remaining 233 kl is met through recycling of treated waste water. The recycled water is to be used for purpose of flushing, irrigating and HVAC cooling. In rainy season, 197 kl every day will be used for HVAC cooling. Prof Das said “being a smart sustainable campus, we have robust institute water treatment facility that minimises wastewater discharge and maximises water recovery. The zero liquid discharge system will allow us to dramatically reduce the campus water intake requirements from river Satluj and virtually eliminate the return of any wastewater to the river.”

**Aug 23**

### **IIT-Kharagpur dedicates Foundation Day to alumnus working for relief**

<https://timesofindia.indiatimes.com/city/kolkata/iit-kharagpur-dedicates-foundation-day-to-alumnus-working-for-relief/articleshow/65511000.cms>

The 68th Foundation Day of IIT Kharagpur, which was celebrated on Saturday, was very unusually dedicated to an alumnus, who passed out just six years ago. Right from the director of the institute to the first-year boys, everyone pledged to stand by Raja Gopal Sunkara and the selfless work he has been doing for the flood victims of Kerala. Christened #HBDKGP, the platform has not only students and faculty, but also alumni from across the world connecting for help.

A agriculture engineering department student, Sunkara graduated in 2012 and became an IAS officer in 2014. He is now the deputy collector and subdivisional magistrate of Padmanabhapuram in Tamil Nadu, which borders Kerala and has been helping to rescue marooned people.

Sunkara's news touched the right chords on the campus and on August 18, while sending out a congratulatory message on social media, IIT Kgp director Partha Pratim Chakraborty described Sunkara as an, "IITKgp-ian, dedicated to the service of the nation. He is tirelessly working in flood hit South India, especially Kerala. Our salutation on Foundation Day... ." Sunkara responded by sending in the relevant details of platforms on which contributions can be made in Thiruvananthapuram or can be sent to his official addresses so that he could transport them to Kerala. He has sent a list of 23 items, which can be sent. "Let us dedicate this Foundation Day to the service of Kerala..." he said, starting the platform #HBDKGP.

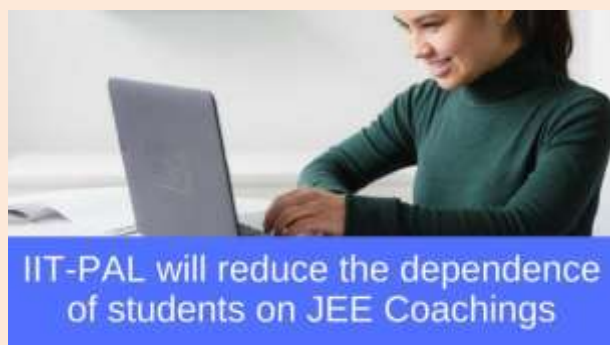
"The campus is inspired by Sunkara. We are proud to have an alumnus who we are told is risking life to save marooned people and reach relief... we have mobilised funds and essential items and are about to send them," said Vishal Singh, student representative on the campus. The alumni foundation should be ready with its funds and other support through a platform that will be operational from Thursday.

**Aug 22**

## **LECTURES PREPARED BY THE IITS TO BE AVAILABLE ONLINE FOR FREE; A MOVE TO REDUCE DEPENDENCE ON JEE COACHINGS**

<https://news.aglasem.com/lectures-prepared-iits-to-be-available-online/>

IIT Council addresses the need of reducing aspirants' dependence on high-end coaching institutes.



As an outcome of the 52nd IIT Council Meeting, where the issue of increasing dependence of aspirants on coaching institutes was discussed, MHRD has come with a solution. Prakash Javadekar has announced that IIT – PAL (Professor Assisted Learning) lectures, prepared by the IITs aiming to help the students to crack the Joint Entrance Exam (JEE) will be available on Human Resource Development (HRD) Ministry's Swayam Prabha Channels.

The lectures will be available on the ‘Swayam’ platforms and can also be accessed on mobile phones anytime. These lectures will be developed and telecasted by the professors of the IITs. Thus, students will be getting the best possible guidance without spending a penny on their IIT preparations.



As per the reports, IIT-PAL will have more than 600 lectures in physics, chemistry, biology, and maths. In addition to that, it would be further available in a handheld form to reduce the dependency of candidates on IIT (JEE Main and JEE Advanced) Coaching.

In addition to introducing the IIT-PAL, Prakash Javadekar said that IITs would now mentor at least five engineering colleges located in its vicinity to improve the quality and standard of engineering education in the country.

The IIT coaching industries have been thriving and providing training to crack the entrance examination for a long time now. The dependence on coaching centers for such training is increasing and is a major concern. Thus, the concern has been taken up in the IIT Council meet and the idea to popularise IIT – PAL has come up.

Now, how much IIT – PAL will be able to curb the dependence of the JEE Main and JEE Advanced aspirants on the coaching centers will be known in the coming future.

In 2019, MHRD has come with IIT – PAL, and National Testing Agency which will now conduct the JEE Main exam from 2019. The dates of JEE Main 2019 exam was announced with few changes on August 21, 2018. The JEE Main 2019 exam will be conducted twice and in online mode only.

**Don't get sarcasm? This bot trained by IIT-B researchers could help you**  
<https://www.hindustantimes.com/mumbai-news/didn-t-get-the-jibe-this-program-by-iit-b-researchers-could-help-you/story-8PQzpfUYu18DM6lCufIs5N.html>

Researchers at the Indian Institute of Technology-Bombay have used different machine learning techniques (artificial intelligence) to detect sarcasm in texts on various social media platforms such as Twitter, Facebook and blogs.



About 10-15% texts on social media pertaining to food, movies or political parties are sarcastic, and 50% currently used algorithms are unable to detect them. The team has developed a programme to generate sarcastic texts for chatbots.

“Excellent service”, an Indian flier posted recently on the Twitter handle of an airline that had sent her luggage to a different city. “Thank you for flying with us,” the airline responded promptly.

Sarcasm has become a popular tool of ridicule on social media, but the algorithms that analyse or respond to users are still not equipped to understand it. Researchers at the Indian Institute of Technology - Bombay (IIT-B) found that 11% of the content shared in the short text space — on platforms such as Twitter and Facebook — is sarcastic, and, while there are algorithms that help social media managers detect sentiments in texts, ordinary programs fail to detect sarcasm 50% of the time.

To catch this glitch, IIT-B and IITB-Monash University researchers are training artificial intelligence to detect and generate sarcastic comments.

“Sarcasm is an attack in disguise,” said Pushpak Bhattacharyya, a professor at the institute’s computer science and engineering department.

“Using only a negative statement to express opinion about a bad service is not as intense or hurtful as a sarcastic statement.”

Sarcasm comprises both positive and negative words, the researchers said.

For instance, ‘I love being ignored’, or, ‘my phone has an awesome battery life of two hours’.

So, Bhattacharyya, his student Aditya Joshi decided to base their research, and train their algorithm on a computational linguistic theory called incongruity or incompatibility.

“The idea is, that a text is considered sarcastic when there is an incompatibility involved, and when there is an intention to ridicule,” said Joshi, whose PhD thesis on the subject was published as a book by Springer Nature Singapore.

“Our computer programmes become a plug-in for sentimental analysts to get the right sentiment.”

The team has been developing the programme for years.

The open-source algorithm has been shared and downloaded at least a 100 times till now, they said.

For almost a decade, brand reputation and market survey companies have been using sentiment analysis to find out what people think of their products and services — from food and movies, to reactions on a political speech. But, with more and more people across age groups taking to the web and social media to express opinions and criticise, researchers said door-to-door surveys are being replaced by analysing what’s appearing on social media. Computer programmes are able to detect those that are positive and negative. Sarcasm is difficult to catch, though.

“It is a challenging form of sentiment,” said Joshi, who received his PhD degree for his work on computational sarcasm this month.

“By definition, while sarcasm means ridiculing or mocking someone, it often has positive words. Since sarcasm is known to be a difficult problem for the sentimental analysis industry, we thought detecting and generating sarcasm will be useful.”

Studies by the International Institute of Informational Technology – Hyderabad (IIIT-H) also found the proportion of non-literal expressions, such as sarcasm, wit, humour and irony, can vary from 0.25% to 40% of the total user generated text on social media, and especially higher on Twitter.

“When users generate content on social media, there is a lot of creativity. It is always difficult to detect sarcasm because the meaning of the expression is not the sum of the individual meanings of the words,” said Vasudeva Varma, professor and dean (research), IIIT-H, who was not involved in the research work. “Computer algorithms find it hard to detect the anomaly in the juxtaposition of the words.”

Varma, who also heads the Search and Information Extraction Lab at the institute added, “In social media, computer programs must have the ability to detect sarcasm and other non-literal expressions to find out opinions and sentiments of people.”

The IIT-B team has also worked on another aspect of the program that enables chatbots to generate sarcastic comments.

A chatbot is a computer programme that conducts a conversation via audio or text.

“Fifty years ago, humans wanted to move from papers to computers. Now, through artificial intelligence, we are trying to bring human qualities in computers. And, sarcasm generation is a step in that direction,” said Joshi.

**Aug 21**

### **JEE (Advanced): IITs reject govt proposal to set up panel for changes to exam**

<https://indianexpress.com/article/education/jee-advanced-iits-reject-govt-proposal-to-set-up-panel-for-changes-to-exam-5316537/>

HRD Minister Prakash Javadekar said that to address concerns regarding students’ dependence on coaching institutes for cracking JEE (Advanced), IITs will strengthen the Peer-Assisted Learning (PAL) programme.



The IITs are learnt to have argued that the JEE (Advanced) is now a formidable brand and, hence, any move to dilute or change its format is not desirable at the moment.

The Indian Institutes of Technology (IITs) on Monday rejected the government's proposal to set up a committee to suggest changes to the JEE (Advanced) in the wake of an inadequate number of candidates qualifying the entrance test this year.

The IITs are learnt to have argued that the JEE (Advanced) is now a formidable brand and, hence, any move to dilute or change its format is not desirable at the moment. They also shot down another suggestion that students who qualify JEE (Advanced) should be allocated only an institute and not the engineering branch in the first year.

According to the agenda of the IIT-Council meeting, a copy of which is with The Indian Express, the government had proposed to set up a five-member panel with the director of IIT-Madras as chairman to "develop a robust and scientifically designed entrance exam system to test the potential of the candidates as well as to reduce their dependence on coaching institutes". Abhay Karandikar, director of IIT-Kanpur; Vineet Joshi, director-general of National Testing Agency; and Prof Kannan Moudgalya of IIT-Bombay are tipped to be the other members of the proposal panel.

Speaking to journalists after the Council's meeting, HRD Minister Prakash Javadekar said that to address concerns regarding students' dependence on coaching institutes for cracking JEE (Advanced), IITs will strengthen the Peer-Assisted Learning (PAL) programme. Under PAL, IIT students and teachers record lectures to help school students crack the entrance test.

In a significant decision taken by the IIT-Council, each IIT is now free to decide the tuition fee for foreign students enrolled in postgraduate programmes — M Tech and research. The Council has delegated this power to the Board of Governors of each institute. The proposal was placed before the Council after IIT-Delhi urged the government to review the fee of Rs 6 lakh per annum fixed by the Council on the grounds that it was too high to attract foreign students.

The Council also approved the suggestion to set up a common front to recruit foreign faculty collectively for all IITs. For this purpose, one IIT will be designated as the representative of the IIT system for a particular country.

For instance, IIT-Bombay is proposed to be the coordinating institute for all faculty recruitment from Australia, Russia and the west coast states in the USA. The designated IIT will then identify academics of Indian origin completing their PhD in foreign universities to recruit them as assistant professors.

### **JEE Advanced Exam Pattern 2019 to Remain Same: Prakash Javadekar**

<https://allindiaroundup.com/news/jee-advanced-exam-pattern-2019-to-remain-same-prakash-javadekar/>

JEE Advanced Exam Pattern 2019 To Remain Same: Prakash Javadekar: Tuesday's 52nd Meeting of the Council of IITs is concluded with the fact that No changes will be made to Marking Scheme, Language, Exam Timings, Question Paper Types, Number of Section, Number of Subjects, Exam Mode etc. in this upcoming session 2019.

Thus, Indian Politician cum Human Resource Development Minister of India – Prakash Javadekar, confirmed that JEE Advanced Exam Pattern 2019 will remain same. Thus, in Paper 1, from Physics, Chemistry and Mathematics, 5, 8 and 5 questions respectively be asked of 15, 32 and 15 marks with -1, -2 and -1 negative marking. While, for paper 2, Physics, Chemistry and Mathematics section includes 6, 8 and 4 questions of 18, 32 and 12 marks respectively with -1, -2 and zero negative marking.



Meeting also reached the conclusion that for foreign or international students, the Board of Governors of the Individual Indian Institute of Technology's will decide the tuition fees. Whereas, no changes will be made to the Admission Fees for Indian undergraduate students in IITs. JEE Advanced Syllabus and Exam Pattern for AAT i.e. Agricultural Aptitude Test is also expected to remain same throughout. Important topics to study for AAT papers includes Exercises in Geometrical Drawing containing lines, context mapping, composition exercise with given elements, understanding and appreciation of three-dimensional forms, triangles and angles etc.

For the August 21 meeting of IIT Council, Cancelling JEE Advanced and Increasing seats to 80,000 was another important proposal to go through. But, very few of them have been accepted to date. No doubt, the second week of this month, August 2018 was flooded with the headlines suggesting scrapping of 'JEE Advanced'. Thus, committee once thought to move towards the fact that JEE Main only for IIT admission and no more JEE Advanced. But, things changed thereafter.

Further latest updates will also be uploaded on <https://www.jeeadv.ac.in> (Official website of Joint Entrance Examination Advanced). As of now, the website clearly mentions Venue for preparatory courses and reporting dates. Candidates can visit the [JEE Advance official website here](#).

For more latest news related to Joint Entrance Examination – Advanced such as IITs reject a proposal for radical reform of JEE Advanced AND IITs, Prakash Javadekar veto HRD ministry's proposal to scrap JEE-Advanced, please visit [ALLINDIAROUNDUP](#) daily.

## IITs to cast net for foreign faculty

<https://www.thehindu.com/news/national/iits-to-cast-net-for-foreign-faculty/article24747058.ece>



Not on contract as now, but as permanent teaching staff, recommends council

The Human Resource Development Ministry will set the ball rolling on facilitating the recruitment of permanent foreign faculty in the Indian Institutes of Technology.

As of now, the IITs can hire foreign faculty only on a contract basis for five years.

The Ministry will take up the matter with the Ministries of Home and External Affairs, whose permission is required for the switch.

Chaired by Human Resource Development Minister Prakash Javadekar, the IIT Council, at its meeting on Monday, took this decision, and it is for the government now to take up the matter with the Ministries concerned.

A senior official told The Hindu that the move was applicable only to the IITs. The IITs are demanding that they be allowed to hire regular foreign faculty to get a wider talent pool to fill up their vacancies.

This will also enable them to climb in global rankings, as the faculty-student ratio and foreign faculty are two of the parameters used in top global rankings.

IIT-Delhi Director V. Ramgopal Rao recently told The Hindu in an interview that the inability to hire permanent foreign faculty was a problem the institution was facing.

As many as 300 faculty positions are vacant in the IIT-Delhi alone, which is about 40% of its faculty strength. If all the IITs are taken together, the vacancies add up to about 5,000.

This directly affects three or four parameters in the QS global ranking and ends up pushing the IITs' ranks down.

One reason for the vacancies in the IITs is that they do not get good candidates. Opening the doors for academics from abroad can address this.

Contractual appointments do not really help, as the contractual teacher cannot take Ph.D. students from the second year of the contract, since it is not known whether the contract will be renewed or not.

## Dates of UGC-NET Dec 2018, JEE Main I, JEE MAIN II, CMAT & GPAT, NEET (UG) released: Check full schedule

<https://www.dnaindia.com/india/report-government-announces-dates-for-neet-jee-main-2019-check-exam-dates-and-schedule-2652869>



(JEE, NEET dates announced)

The government has announced the dates for JEE Main I, JEE Main II, CMAT and GPAT, NEET (UG), and UGC (NET). These exams are conducted to select candidates for the country's top medical and engineering colleges.

The JEE Main I, JEE Main II, CMAT and GPAT, NEET (UG), and UGC (NET) will be conducted by the NTA (National Test Agency). The dates have been announced by the human resources development ministry.

The JEE Main 2019 will be first held in the month of January in 8 sittings from 6th till 20th January, 2019. The second JEE Main exam will be held in the month of April from 7th till 21st April, 2019. It will also be conducted in 8 sittings.

NOTE: The change in NEET exam pattern (as against the statement released on 7th July, 2018), which will now be a single exam in pen-and-paper mode and in the same number of languages as been conducted last year.

Here is the calendar for NEET, JEE Main 2019 dates released:

UGC-NET December 2018	Important Dates
Registration Dates	1st to 30th September, 2018
Release of Admit Cards	19th November, 2018
Date of Examination	9th to 23rd December, 2018
Date of announcing results	10th January, 2019

<b>JEE Main I</b>	<b>Important Dates</b>
Registration Dates	1st to 30th September, 2018
Release of Admit Cards	17th December, 2018
Date of Examination	6th to 20th January, 2019
Date of announcing results	31st January, 2019

<b>CMAT &amp; GPAT</b>	<b>Important Dates</b>
Registration Dates	1st November to 30th November, 2018
Release of Admit Cards	7th January, 2019
Date of Examination	28th January, 2019
Date of announcing results	10th February, 2019

<b>NEET (UG)</b>	<b>Important Dates</b>
Registration Dates	1st November to 30th November, 2018
Release of Admit Cards	15th April, 2019
Date of Examination	5th May, 2019
Date of announcing results	5th June, 2019

<b>JEE Main II</b>	<b>Important Dates</b>
Registration Dates	8th February to 7th March, 2019
Release of Admit Cards	18th March, 2019
Date of Examination	6th to 20th April, 2019
Date of announcing results	30th April, 2019

The National Testing Agency (NTA) is Centre's one-point agency for conducting all entrance examinations. The National Testing Agency will conduct the National Eligibility Test once a year in December, said Union HRD Minister Prakash Javadekar.

Minister of State for Human Resource Development (HRD) Upendra Kushwaha had informed the Lok Sabha last year that the NEET and JEE (MAINS) might be conducted twice a year. "The exams will be conducted online at least twice a year, thereby giving an adequate opportunity to the candidates to bring out their best," Kushwaha had said.

The NTA was approved by Union Cabinet chaired by Prime Minister Narendra Modi in November 2017. The NTA would work as an autonomous and self-sustained premier testing organisation to conduct entrance examinations for higher educational institutions. The NTA would initially conduct those entrance examinations which are currently being conducted by the Central Board of Secondary Education (CBSE). Both JEE (MAINS) and NEET are conducted by the CBSE.

### **Delhi CM inaugurates IIIT Delhi Phase 2 Campus today, total strength of college has increased, says Sisodia**

<https://www.jagranjosh.com/news/delhi-government-inaugurates-iiit-delhi-campus-today-146498>



The Delhi Government has been ringing lot of new ideas and plans for making the education sector a big hit. The Deputy CM Manish Sisodia has been effectively working in the field of education to make sure that the quality of education increases day by day in the capital. Today, CM Arvind Kejriwal inaugurated the IIIT Delhi Phase 2 Campus along with the Deputy CM. Manish Sisodia shared this news through his twitter handle. It has been claimed that the total capacity of the IIIT-D has increased over time. It has now reached 3000 students from 1000 in 2015.

In his tweet, he stated, "With immense ambition & hope, inaugurated the sprawling IIT Delhi Phase 2 Campus with Hon'ble CM Arvind Kejriwal. The total capacity of IIIT-D has now reached 3000 students from 1000 in 2015. Good thing is that 85% of the students are from Delhi Schools."



In another tweet he mentioned, “Delhi Government will call Summit of NRI Teachers working in Universities and Schools abroad. This will help in making Delhi colleges, Universities and Schools World-class. Chief Minister Arvind Kejriwal announced this while inaugurating the newly constructed IIIT-D Building.”

The Delhi government has been working very hard towards the better education of the students. From strict CBSE measures to new colleges and opportunities, the Delhi Government has been coming up with new development models.

### **IIT-PAL lectures on SWAYAM portal to reduce students’ dependence on coaching classes**

<http://tehelka.com/iit-pal-lectures-on-swayam-portal-to-reduce-students-dependence-on-coaching-classes/>

***IIT-PAL lectures to be available on mobile phones anytime: HRD Minister Javadekar***



While attending 52nd Indian Institute of Technology (IIT) Council meet at IIT-Delhi on August 20, Union Human Resource Development (HRD) Minister Prakash Javadekar said that IIT-PAL (Professor Assisted Learning) lectures would now be available in handheld devices, including mobile phones via the ‘SWAYAM’ portal anytime in order to reduce students’ dependence on coaching classes.

Javadekar further said, "IIT-PAL which has more than 600 lectures on Physics, Chemistry, Biology, and Maths will be made available on Swayam platform free of cost. This will act like a discussion forum so that students' dependence on coaching classes can be reduced."

He further added that IITs would now mentor at least five engineering colleges and five higher secondary schools located in its vicinity in their bid to improve the quality and standard of engineering education in the country.

PAL lectures, which are being prepared by the IITs, aim to help and support students to crack the Joint Entrance Exam and are telecast on Human Resource Development (HRD) Ministry's Swayam Prabha Channels.

### **IIT-H to incubate 50 'Make in India' startups**

<https://www.thehindu.com/news/national/telangana/iit-h-to-incubate-50-make-in-india-startups/article24747421.ece>

Launches chip design incubator; calls for applications

The Indian Institute of Technology-Hyderabad (IIT-H) has launched Fabless Chip Design Incubator (FabCI) with the aim to boost the Indian chip design sector. Three startups are already being incubated, and FabCI has called for fledgling startups to apply.

FabCI provides a bouquet of offerings, including free software tools with leading technology partners in Electronic Design Automation (EDA), a good characterisation facility for testing the chips and equipment for performing DC and RF characterisation.

The primary motivation for this unique incubator program is to provide a one-stop solution for startups focusing in the area of chip design. The goal is to incubate at least 50 'Make-in-India' chip design companies that can compete globally and generate Intellectual Property Rights (IPRs), according to a press release on Tuesday.

Speaking about FabCI, IIT-H director U.B. Desai said: "This incubator exemplifies the commitment of IIT-H to develop semiconductor and chip design industries in India and enhance its IPR. We are looking forward to incubating startups that will roll out the next generation of disruptive products. This incubator will also contribute to the 'Startup India' and 'Make In India' campaigns of the Government of India."

FabCI is funded by Union Ministry of Electronics and Information Technology. FabCI technology partners, Cadence Design Systems, Inc. and Mentor Graphics, are leading providers of EDA software, hardware and IP.

FabCI is already incubating three start-ups — Lemonflip, SenseHealth Technologies and WiSig Networks — which are at different stages of evolution. It also offers virtual support to non-Hyderabad-based startups.



**Aug 20**

## **No change in admission for IISc, IIT-D and IIT-B**

<https://www.deccanherald.com/national/no-change-admission-iisc-and-688480.html>

Admissions to the undergraduate courses at the Indian Institute of Science (IISc), Bengaluru, as well as at the Indian Institute of Technology (IIT) at Delhi and Mumbai will continue to be on the basis of the Joint Entrance Examination (JEE) Advance system, notwithstanding their recent elevation as Institutes of Eminence.

The IIT Council on Monday decided not to consider any further changes in the JEE (Advance) system separating the three from the rest of the top line of technical institutions, sources at the Union human resource development ministry said after a meeting of the council, held at IIT Delhi.

To a large extent, IIT brand value depends on the careful selection of the students. JEE Advance is a fairly settled system. The council agreed not to tinker with it," the sources said.

A change in the admission system was understood to be one of the proposals on the table before the IIT Council following the Centre's last month's decision to accord the Institute of Eminence (IoE) tag to six institutions including the two IITs and the IISc.

Others in the IoE list are BITS Pilani, Manipal Academy of Higher Education and Reliance Foundation's upcoming Jio Institute.

Also there will be no revision of tuition fee for undergraduate students.

The board of governors at each of the IITs has been given freedom to decide on the fee for foreign students who wish to join M Tech programme.

Currently the annual fee for such students is pegged at a uniform \$ 8,000 (nearly Rs 5.58 lakh) across the IITs.

With poor standard of engineering education in many private colleges, the council has also asked each IIT to mentor at least 5 local engineering colleges.

"Most of them will be from the private sector," said an official.

The mentoring would involve orientation and training of teachers in those private colleges, introduce those students to the IIT system and programmes like PAL (professor assisted learning) and encouraging the industry to have a look at the students passing out from those colleges.

IIT Madras is the only IIT that does mentoring at the moment.

"Besides IITs have also been asked to engage with high school teachers to up-skill them. At least five schools near an IIT should be brought in for the engagement," Prakash Javadekar, Union Human Resource Development Minister, said.

To help senior high school students evade the coaching institutes that charge hefty fees, the IITs have prepared more than 600 online material including lectures, hand-on experiments, discussion forum and trial examinations.

“All of them would be put on the IIT PAL platform and made available to students free of cost,” the minister said.

## **IIT Kharagpur sets up Re-Water Research Center**

<https://www.theindianwire.com/education/iit-kharagpur-sets-re-water-research-center-71320/>



Wits University

It was announced on the 68th Foundation Day of IIT-Kharagpur that with the help of two alumni members, the institution will be setting up a Re-Water Research Center. A statement issued on Saturday mentioned that it will help replenish and rejuvenate water resources nearby. It will tackle two cumbersome challenges of an urban India: sewage disposal and access to clean potable water.

One of the alumni members, Aneesh Reddy, who is investing the seed money, responded that “the scarcity of water for drinking and domestic use is becoming acute and will only worsen in the coming years. On the other hand, urban areas are witnessing massive sewage problems. The idea of linking these two crises and coming up with one viable solution is challenging.”

A network with the government will be created by the ‘Aditya Choubey for Re-Water Research’ to move this technology and process to other cities where the water challenges thrive, said Reddy.

The on-campus plant will be set up by the institute and this will be successful in converting 1.35 million liters of sewage water from hostel facilities into 1.2 million liters of potable water and that too on a daily basis. This miracle plant is expected to be ready by March next year.

Prof M M Ghangrekar, faculty at the Department of Civil Engineering will be heading this project: “We will conduct quality assurance tests demonstrating the suitability of the technology for treatment of sewage and the suitability of the treated water for consumption and infuse confidence among all agencies and the public at large related to water supply, treatment.”

The project will be operationally developed in such a way so to attract commercial and profitable ventures. Other alumni, Anant Choubey added that “the project is being developed to attract potential entrepreneurs and government agencies to take up sewage treatment at a large scale and with a business model for banks to gain confidence in funding such businesses.”

Director, IIT-KGP, Professor P P Chakrabarti weighed in by stating the adaptation of similar sustainability models in foreign countries:

“We are looking forward to participatory models in villages to implement this technology. We would also engage international water experts and professionals from the industry as researchers and advisors in this center. Aneesh and Anant will be advisers as well.”

**Aug 19**

### **Once deemed impossible, IITs and IISc are ushering in changes**

<https://economictimes.indiatimes.com/industry/services/education/once-deemed-impossible-iits-and-iisc-are-ushering-in-changes/articleshow/65455325.cms>



Varun Bhalerao studied electrical engineering at the Indian Institute of Technology (IIT), Bombay, but he never expected to return there to teach. That was because he went on to specialise in astronomy, a field of study his alma mater then had little interest in. He earned a PhD from California Institute of Technology, where he studied neutron stars, supernova explosions and gamma ray bursts, complex celestial matters that held little interest to the firmly earth-focused IITs. He was proved wrong.

IIT Bombay accepted him readily in early 2017 as its first astronomer. Within a year, it hired four more astronomers. Although astronomy is not yet a major teaching programme, research has started in earnest. Bhalerao is now using the engineering tradition at IIT Bombay to indulge in one of his passions — building cutting edge telescopes.

Bhalerao and his team are developing software for automating an 18-year-old optical telescope at Hanle in Ladakh, the third-highest observatory in the world. He is also working with the Indian Space Research Organisation (ISRO) to develop gravitational astronomy counterparts, an exciting new field within astronomy.

For his telescope-building, Bhalerao works with three different engineering departments — electrical, mechanical and aerospace. “For my work,” says Bhalerao, “I have to be a scientist in an engineering

organisation or an engineer in a science organisation.” IITs had science departments earlier, but they were largely silos working independently of engineering departments.

Bhalerao’s experience is indicative of changes sweeping India’s marquee technical education schools. Once hide-bound in their ways, IITs and the premier Indian Institute of Science in Bengaluru are rethinking their approach to hiring faculty, interdisciplinary research, humanities and much else, and ushering in a lot of flexibility and methods practiced at the best science institutions around the world. This new approach also means they are able to develop multidisciplinary centres and teams working on some very challenging projects. Some of these are of strategic importance to the country, some others tackle fundamental questions in science, while others research problems of interest to industry. A few also look at the grassroots, working on solutions that could help the poor. These changes are also manifesting as innovative courses, departments in new fields and tech startups built in-house.

IIT Bombay is a visible face of this change. “We are developing a programme to change the format of education,” says IIT Bombay assistant professor and social scientist Anush Kapadia. “The idea is to burst the silos.”



If you start addressing the ranking parameters, you have, in a sense, lost the battle, says Devang Khakhar (in pic), director of IIT Bombay.

Like Bhalerao, social scientist Anush Kapadia may not have envisioned himself as an IIT professor while pursuing a PhD in anthropology at New York’s Columbia University. Upon returning to India, he interviewed with Ashoka University and Premji University, but eventually chose IIT Bombay. “They took a while to get back,” says Kapadia. Social sciences are further removed from engineering than astronomy. Once he joined IIT Bombay, he has started taking an active interest in rethinking what it means to provide an IIT education.

Across the IITs, there are several professors like Bhalerao and Kapadia, young researchers who may not have quite fit into an IIT system as recently as five years ago. Now they are leading the change, in some ways.

### **Brain Gain**

In the last five years, India has seen a large inflow of young scientists and engineers, and many of them have made their way into the best IITs, IISc and other elite institutions. According to data with the Department of Science and Technology (DST), there was a 70% increase in the number of fellowships awarded to outstanding young scientists returning from overseas in the five years after 2012,

compared with the five years before 2012. Many of these young scientists and engineers have joined IITs, IISc and the emerging Indian Institutes of Science Education and Research (IISER).

IIT Madras has been recruiting 25-30 young faculty for the last five years. IIT Bombay has recruited more than 30 professors a year since 2012. The newer IITs have been recruiting even more. IISc is hoping to hire a lot of young faculty over the next few years. The net result—the average age of researchers in some of India’s elite institutions has come down from close to 60 in the 1980s to below 40 years now.



We want to be somewhere in between Caltech and MIT, says Anurag Kumar, director of IISc.

A younger faculty also means a different culture at these institutions. “We were very diffident in the 1980s,” says G Venkatesh, then an assistant professor of computer science at IIT Bombay and now a professor of humanities at IIT Madras. “Now the young faculty are very confident and ambitious. They know that they are on top.”

This means fresh thinking and a bolder vision — they are now tackling more challenging problems.

At IIT Hyderabad, Nishanth Dongari works on missile defence systems, and Kiran Kuchi develops 5G technologies. At IIT Bombay, Bhalerao is trying to create a resurgence of telescope-building in India. Manan Suri at IIT Delhi, who was chosen this year by MIT Technology Review as one of 35 innovators under 35, develops chips inspired by the structure of the brain. At IISc, Pramod Kumar is building a system to use super-critical carbon dioxide. This last one, again, is an illustrative example.

## BRAIN GAIN

### FACULTY

IITs and IISc are **hiring younger faculty at large numbers.**

Average age of faculty has gone **from close to 60 in 1980s to 40 now**

Massive uptick in the number of **young scientists returning to work in India**, and IITs and IISc are mopping them up

**70% Increase in the five years after 2012**, compared with five years before 2012, according to the Department of Science and Technology

Pramod Kumar joined IISc as an assistant professor in 2012, and immediately started working at a problem unusual for the institute developing turbines that use supercritical carbon dioxide, instead of steam. Turbines driven by supercritical carbon dioxide — a material that is neither liquid nor gas — requires no water and can be a tenth of the size of steam-based turbines. It is supposed to be the future in the renewable energy industry (including in nuclear plants), but developing it is hard.

So far, no commercial product exists. In 2012, IISc did not have a significant presence in energy research. Now, Kumar has developed the technology — with assistance from other IISc departments — for supercritical carbon dioxide, but the turbine is being built. “Our mandate now is to have a global presence in technology,” says Kumar.

### STUDENTS

**The composition of the student body at IITs is changing.** While it used to be predominantly undergrad, there is now more focus on post grad and PhD

At IIT Delhi, **65% of the student body is graduate students**

### IMPACT

**Younger faculty ushering in a bolder culture**, tackling more challenging problems

**More graduate students mean greater research output**, resulting in a rise in rankings

### Research Focus

As the IITs focus more on research, the student population in the IITs has also been changing in nature, from being predominantly undergraduate institutions to one being dominated by masters and PhD students. This is a profound change, quite in keeping with the ambition of the IITs to become globally-known research institutions. At IIT Delhi, for example, graduate students now make up 65% of its student population. “Our research output is going up because of the graduate students,” says IIT Delhi

director Ramgopal Rao. "It is also a reason why our rankings are improving." Research output is a major parameter in higher rankings.

As the IITs and the IISc ventures into new areas of research, they are also developing new courses. IIT Bombay is planning new undergraduate programmes in mathematics, earth science, biology, management, humanities and social sciences. On the cards is a master's programme in film-making. The institute is also considering a master's programme in fine arts. Among all these, it is focusing on interdisciplinary research, the single most important trend sweeping across India's elite science and technology institutions.

At IIT Madras, the first interdisciplinary centre — on combustion research — was seeded in 2014 by the Department of Science and Technology. Thereafter, formation of such centres have been driven by the faculty. There are now centres on computational brain research, biological systems engineering, and data science and artificial intelligence. IIT Madras organises a grand challenge - a prize of Rs 2 crore - every year for proposals for new interdisciplinary centres.

New centres are going to be formed on energy and nanomaterials. In the research park built just outside the campus, chemistry professor T Pradeep is developing a multidisciplinary centre on water that will look at the topic from start to finish - basic research involving many disciplines, developing technology, building products, incubating startups, and manufacturing.



Interdisciplinary Projects IIT Delhi also organises challenges to push faculty to form interdisciplinary projects. IISc had its first interdisciplinary centre on climate change a few years ago. Since then, it has added centres on energy and water. New centres are being formed on manufacturing and policy. Pramod Kumar's supercritical carbon dioxide project is part of the interdisciplinary centre on energy, and IISc has formed another interdisciplinary centre on hypersonic flight. But unlike the IITs, IISc does not plan to become a broad-based institution with strong humanities. "We want to be somewhere in between Caltech and MIT," says IISc director Anurag Kumar. Not too small, but not too big either.

India's best research institutions differed from the best in the world in one crucial respect: the mix of academic stars and the rest. Harvard University, for example, has a few stars that grab a disproportionate amount of money and projects, and then a large number of highly competent faculty. Indian institutions have now begun approaching this mix, in relative terms. "Traditionally the tail had been long and thin in the IITs," says IIT Madras director Bhaskar Ramamurthy. "It is now changing."



Some of the IITs have now started pushing students to think in totally new ways. IIT Madras offers students the option of doing an interdisciplinary master's programme when they are in their third year. IIT Gandhinagar awards a fellowship -called Explorer Fellowship - for six students every year to go around seven states in the country on a shoestring budget of Rs 37,000. The aim of the fellowship is for the students to experience India in all its diversity, and to think about solving its problems later in life.

Subodh Kumar, a student of mechanical engineering, went this year to some Himalayan states, Guwahati, Hyderabad, Chickmagalur and Alleppey in 47 days. His project was to study how culture influences beverages in these regions, but the real effect on him was much more than that. When he started, he was sure he would be mechanical engineer all his life. When he came back, he was sure he did not want to be an engineer. "I understood that engineers can do other things also," says Kumar.

An IIT education that makes students question the very decision to become an engineer. Now that's real change.

### **IIT-M team creates low-cost exhaust emission controller**

<https://timesofindia.indiatimes.com/city/chennai/iit-m-team-creates-low-cost-exhaust-emission-controller/articleshow/65456425.cms>





In what could be a way to make the city air cleaner with lower levels pollution, a team of researchers from IIT Madras have developed a diesel exhaust emission control equipment, which can be retrofitted into the tailpipes of old diesel vehicles still in use. The device could considerably lower the exhaust pollution from diesel vehicles.

Sharing details with TOI, associate professor of civil engineering in IIT-M, S M Shiva Nagendra, said the idea to create such an equipment was conceived two years ago and a prototype of the equipment was made recently. It was then tested in laboratory conditions for a few months. Now the researchers are planning to go ahead with manufacturing the low-cost equipment. The team has filed for patent rights.

One of the researchers— Ranga Rajan T— said the equipment is a modified cyclone separator which pushes the pollutants towards the sides, making them hit the wall and settle down. The smaller particles, especially those less than 10 microns, will move towards the centre. The proportion of the smaller particles are very high in a diesel engine exhaust. Thus, a special arrangement was designed and placed inside the body of the cyclone separator to capture these. When this test was conducted pollution levels reduced and particulate matter removal of 40% to 54% was achieved, Ranga said.

One of the major advantages of this equipment is that it will not directly obstruct the gas flow from the exhaust. Hence, fitting the equipment on the tailpipe will not affect the performance of the engine, which is not the case with existing technologies, he said, adding the product is purely mechanical with no moving parts making it easy to manufacture and maintain.

Another researcher M Diya, said a week's time is required to make one equipment. Defence authorities and the TVS group have asked them to demonstrate their innovation. The IIT-M Research Park in Taramani provided financial assistance of Rs 7.5 lakh for making the equipment, said V Dheeraj Alshetty, a researcher from the team.

### **IIT Kharagpur launches centre to treat sewage water, make it potable**

<https://indianexpress.com/article/cities/kolkata/iit-kgp-launches-centre-to-treat-sewage-water-make-it-potable-5313799/>

The Centre is planning to set up an on-campus plant which will daily convert 1.35 million litres of sewage water from the hostels into 1.2 million litre of potable water.

IIT-Kharagpur on Friday launched its Re-Water Research Institute, which will primarily look at treating and converting sewage water into potable water.

The Aditya Choubey Center for Re-Water Research has been set up by a seed fund put in place by IIT alumni Anant Choubey and Aneesh Reddy to “remediate, replenish and rejuvenate water resources”.

“The scarcity of water for drinking and domestic use is becoming acute and will only worsen in coming years. On the other hand, urban areas are witnessing massive sewage problems. The idea of linking these two crises and coming up with one viable solution was challenging. Having done that, we would be networking with government bodies to take up this technology and the process...” said Reddy.

The Centre is planning to set up an on-campus plant which will daily convert 1.35 million litres of sewage water from the hostels into 1.2 million litre of potable water. The pilot plant at IIT-Kharagpur is expected to be ready by March 2019. Water processing and output will be monitored in real-time and conform to the IS 10500-2012 standard for drinking water.

“We will conduct quality assurance tests demonstrating the suitability of the technology... and infuse confidence among all agencies and the public at large...” said Prof M M Ghangrekar, faculty at the Department of Civil Engineering, who will be heading the project.

The researchers will also develop an operationally viable technology so that the plant can be profitably commercialised.

“We are working towards bringing down the cost to less than Rs 10 per kilo litre. This will allow the manufacturer to invest additional funds towards setting up more plants. The project is being developed to attract potential entrepreneurs and government agencies to take up sewage treatment at a large scale and with a business model for banks to gain confidence in funding such businesses,” said Choubey.

Meanwhile, IIT-Kgp Director, Prof P P Chakrabarti, said similar models of water sustainability have been adopted in foreign countries. “We are looking forward to participatory models in villages to implement this technology. We would also engage international water experts and professionals from the industry as researchers and advisors in this Centre,” he said.

### **IIT prof finds burn-free treatment for cancer**

<http://www.newindianexpress.com/thesundaystandard/2018/aug/19/iit-prof-finds-burn-free-treatment-for-cancer-1859531.html>

A scientist at IIT Ropar has found a way to reduce skin burns caused during treatment of breast cancer, thereby reducing the trauma patients suffer.



A scientist at IIT Ropar has found a way to reduce skin burns caused during treatment of breast cancer, thereby reducing the trauma patients suffer. Worldwide, breast cancer is the second most commonly diagnosed type of cancer after lung cancer. Skin burns are one of the most common complications reported during treatment of early-stage breast cancer with radiofrequency ablation (RFA).

A group led by Dr Ramjee Repaka, Associate Professor, Department of Mechanical Engineering, IIT Ropar, conducted a numerical study to address this problem.

“Skin burn is a major issue during RF heating of tumour located close to the breast surface. Quantification of the requirement of convective cooling during RF heating can circumvent the skin burns effectively,” Repaka told The Sunday Standard.

The study evaluated the efficacy of forced convective cooling in minimizing skin burns during RFA. It revealed that the application of forced convective cooling with RFA effectively minimises skin burns at the surface of the breast, with a marginal increase in the time required for complete tumour necrosis, from 11.67 minutes to a maximum of 18 minutes. It was further found that convective cooling at the surface of the breast had a negligible effect on the applied input power requirement during application of RFA.

“Globally, breast cancer represents a significant personal, social and economic burden that affects women in the prime of their lives. It is the most frequently diagnosed cancer among women, with the leading cause of mortality.”

“Worldwide, breast cancer is the second most diagnosed type of cancer after lung cancer (11.9 per cent of all cancer incidence) and the fifth most common cause of death by cancer (6.4 per cent of all cancer deaths). According to the World Health Organization (WHO), 1,44,937 new cases of breast cancer were diagnosed in India in 2012, with 70,218 cases of death. The rapid rise in breast cancer cases among women in India is so alarming that for the first time it has crossed cervical cancer, which ruled the top position for almost four decades in terms of incidence as well as deaths,” he said.

Repeka said early detection of breast lump had improved dramatically due to increased awareness and widespread screening and mammography programmes, which have given a boost to non-surgical modalities for treating cancer.

He added that RFA could be used for both curative and palliative indicators and had been used against solid tumours throughout the body, including the liver, lungs, kidneys and bone tumours, bone metastasis and breast cancer. It uses low-frequency radio waves with a long wavelength to generate heat and cause coagulative necrosis.

During RFA, a needle electrode is inserted under ultrasound guidance to deliver an alternating current that causes ionic agitation, tissue heating and cell death.

**Aug 18**

### **How IIT-M is making students agripreneurs**

<https://www.thehindubusinessline.com/economy/agri-business/how-iit-m-is-making-students-agripreneurs/article24719133.ece>



The team from IIT-Jammu with their weed remover prototype

### **The institute is helping students develop scalable products and commercialise them**

Sagar Rathee, a second-year mechanical engineering student at IIT-Jammu came to IIT-Madras to attend the annual Mechanica contest with the intention of developing an innovative product, bagging an award and returning home.

He never realised that he and his team members would end up getting an opportunity to become entrepreneurs thanks to developing a Weed Remover prototype.

In the past, students developed a product, say a robot or a Formula One car, and the winners were given prize money on the spot.

It ended there. However, this year students were asked to develop scalable products solving problems in agriculture that would be provided incubation support to commercialise them .

That's how five teams, including IIT-Jammu, developed scalable products that could potentially hit the market one day.

The other four winners were from IIT-Madras; Ramco Institute of Technology, Rajapalayam; Sri Manakula Vinayagar Engineering College, Puducherry, and Marian Engineering College, Menamkulam, Kerala.

IIT-Madras' MechanicaTec2Farm contest, driven by students of the Department of Mechanical Engineering, was co-ordinated by Rural Technology Action Group (RuTAG); Rural Technology Business Incubator (RTBI) and Creativiti Council, an NGO from Kerala, said K Venkat Teja, Student-Secretary, Mechanical Engineering Association, IIT-Madras.

### **Farm-related prototypes**

With ten problems, three rounds of evaluation and over 170 registrations, a total of 14 teams were short-listed to the final round to develop prototypes and test their models.

The five winners were selected in June, said Teja. The prototypes are unique. The 'palm tree climber' developed by the students of IIT-Madras is a robotic climber that follows the human method of climbing.

This remote-controlled arm replicates the motions of human arms and can be used remotely from below the tree to cut leaves or fruits. Ramco Institute developed a machine to support banana trees and prevent damage by gusty winds.

Sri Manakula Vinayagar college developed a pepper harvester that provides a cutting-cum-collection system with easy operation and maintenance, said Teja.

Winners will be provided space at IIT Research Park to take their prototypes to the next level, including getting angel investments, said Abhijit P Deshpande, Professor in charge of RuTAG.

### **Incubation system**

"Our endeavour is to encourage students to work on rural technology from conceptualisation, design, prototyping and field trials to incubation," he told BusinessLine. RTBI will provide infrastructure, logistics and mentoring. During the three-month period, students will get exposure to the larger incubation ecosystem and work towards the basic business model for their venture, which could attract angel investors and eventually hit the market, said Deshpande.

The team from Kerala has already moved in to the park to develop a nutmeg collector that provides a simple mechanical system to harvest fallen nutmeg from THE ground in a standing position. "RTBI is guiding us on start-up methodologies like product development and market analysis.

Our aim is to ultimately help farmers," said Benson Gipson from Marian Engineering College.

Rathee of IIT Jammu said: "We got necessary financial and technical support. We got connected with NGOs to help us better understand the problem. We are now actively continuing development of our product and are look forward to get incubated in RTBI."

### **IIT-Jodhpur Study Reveals Why Desi Food Is Super Delicious**

<https://www.hungryforever.com/iit-jodhpur-study-reveals-why-desi-food-is-super-delicious/>

The common hypothesis is that food tastes best when paired with ingredients that share the same flavour. For example, Blue cheese goes perfectly with Chocolate when they are served together giving it a unique taste because of the overlapping flavours of the ingredients. A study conducted by Indian scientists from Indian Institute of Technology, Jodhpur discovered that Indian cuisine aka Desi Khaana tends to break the norm of this hypothesis.

### **THE UNIQUE TASTE**



The research involved downloading more than 2500 recipes from an online cooking database – [TarlaDalal.com](http://TarlaDalal.com). Recipes were considered from various cuisines like Bengali, Gujarati, Punjabi, and South Indian, to make sure the vast geography, climates, and cultures of the Indian subcontinent are encompassed in the study. The recipes altogether were equivalent to 194 different ingredients. The scientists then created a flavour network in which all the ingredients were linked if they appeared together in the same recipe. The network looked like this:



The researchers then created a positive or negative pairing of the food depending on the amount ingredients that shared the same flavour compounds and to much surprise it was found that Indian foods saw a strong affinity for negative pairing i.e. fewer or no similar flavour compounds were present in the Indian cuisine. This negative pairing is what gives Indian food its unique signature taste.

So now we know why “Saare Jahaan Se Accha, Hindustani Khaana Hamaara”!

### **IIT-B scientists to develop effective TB treatment**

<https://www.biospectrumindia.com/news/58/11502/iit-b-scientists-to-develop-effective-tb-treatment.html>

The research holds promise as it would significantly shorten the current two-year treatment.



The Indian Institute of Technology-Bombay (IIT-B), along with three other renowned national institutes, is running clinical trials of a breakthrough medicine that aims at treating multi-drug resistance (MDR) tuberculosis (TB) and killing the bacteria in the lungs more quickly, if taken along with regular medication.

The research holds promise as it would significantly shorten the current two-year treatment, and the easy mode of administration would persuade more patients to complete their course of medication. Currently, MDR-TB treatment involves 16 tablets a day and daily injections for the first six months.

This research began last year and the first phase of the trials has been completed at the National Institute of Tuberculosis and Respiratory Diseases, New Delhi, which is also conducting the study with the National JALMA Institute of Leprosy and Other Mycobacterial Diseases in Agra, and the Delhi-based Indian Council of Medical Research (ICMR).

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

### **Investigation Confirms IIT Dhanbad Faculty's Scientific Misconduct**

<https://thewire.in/the-sciences/investigation-confirms-iit-dhanbad-facultys-scientific-misconduct>

After allegations of image duplication, 14 papers published by two faculty members of the institute were retracted and two others were corrected.



The Science block of IIT (ISM) Dhanbad. Credit: Institute website

An investigation by IIT (Indian School of Mines) in Dhanbad to look into allegations of scientific misconduct by two faculty members has been completed, with the report set to be forwarded to the board chairman for further action. While details of the report are yet unknown, The Hindu reported that the scientific misconduct appears to be serious.

The investigation began after assistant professor Rashmi Madhuri of the department of applied chemistry and assistant professor Prashant Sharma of the department of applied physics were accused of image duplication in research papers. Since then, 14 papers published by the two professors have been retracted and two others were corrected. The first paper was retracted in February this year, while the latest retractions were towards the end of May.

According to The Hindu's R. Prasad, about 25 more papers by the two authors with problematic images have been listed on PubPeer, a website where researchers and users can discuss and review scientific papers. These papers also seem to have used the same duplicated image.

The investigation by the fact-finding committee – a four-member team, none of whom are from the institute – began soon after the first paper was retracted. IIT Dhanbad director Rajiv Shekhar told The Hindu once the report is with the board’s chairman, the two faculty members would be served with a chargesheet after it is approved by the board. If the duo accept the charge, the board would decide a suitable penalty. “If they [contest the charge sheet,] then another committee will look at their response [and take a decision],” he said.

The next board meeting is scheduled for September. Whether the two professors accept the charge or not, the entire investigation will be completed before the end of this year, said Shekhar, adding that the institute was eager to close it soon.

### **A rare instance**

Image duplication is a global problem. However, few offenders are ever charged for it, which makes the IIT (ISM) Dhanbad investigation particularly important.

In June this year, a preprint paper published by a group of American biologists estimated that 35,000 papers indexed in a biomedical publication between 2009-2016 could be candidates for retraction due to image duplication.

Other research has shown that the problem is more prevalent in India. A 2016 analysis showed that “India had a 1.93-times higher-than-predicted ratio of papers containing image duplication”. The Wire had reported that the problem was compounded due to absence of a proper redressal or sanction mechanism, adding “While universities include anti-misconduct pledges in policy documents, complaints of misconduct against a faculty member can only be directed towards the offender’s colleagues, and there are no extra-university regulations for what should happen next nor in what timeframe. As a result, swift and fitting action is almost unheard of, even against high-profile offenders.”