

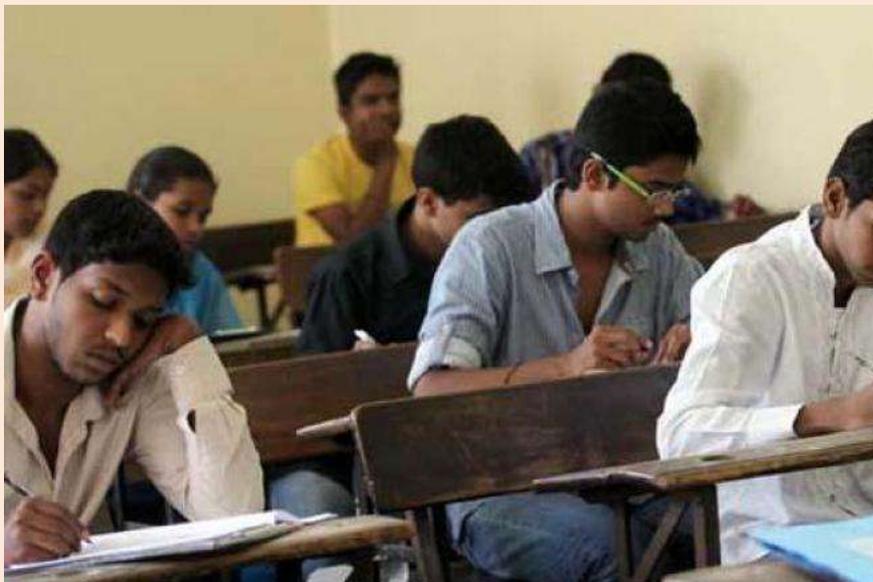
**News Clips**  
**June 16-22, 2018**

**June 22**

**MHRD plans massive revamp in JEE exam pattern; here's all that can change**

<https://www.financialexpress.com/education-2/mhrd-plans-massive-revamp-in-jee-exam-pattern-heres-all-that-can-change/1214666/>

Alarmed by the lack of employability among engineering graduates despite a large number of them clearing the Joint Entrance Exam (JEE), the central government is now working to bring about a sea change in the pattern of engineering examinations in the country.



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Alarmed by the lack of employability among engineering graduates despite a large number of them clearing the Joint Entrance Exam (JEE), the central government is now working to bring about a sea change in the pattern of engineering examinations in the country. The focus, it is learnt, will be on discouraging the practice of rote learning that has become the norm to clear entrance examinations in the country. The bigger worry, of course, is the unemployability of these engineering graduates when they step into the market.

As part of the changes, the Ministry of Higher Education, in consultation with the All India Council of Technical Education (AICTE) is in the final stages of discussions to change engineering exam patterns across the country, reported News18. There are sweeping changes that the government is planning includes new question types and question papers for engineering entrance tests as well as semester exams.

The report quoted a source from the Department of Higher Education as saying that a report by an independent committee set up with the AICTE has already come out with a report and deliberations are underway on it.

According to All India Institute of Technical Education (AICTE) chairman Anil Sahasrabudde, the major drawback of these engineers is lack of factual knowledge. From their school times, a student is told rote learning is the best. If you memorize a part, there is a better chance that you'll pass the exam easily.

The understanding of the government is that the coaching centers have promoted a trend of rote learning that has started to be very serious as a process of learning. In a majority of the coaching centers, a summary of the lectures is given to the students and ask them to memorize it by heart.

A student in an engineering coaching center in Kalu Sari, Delhi, usually carries an earphone and watches shows on his phone during the whole lecture. Especially in the field of engineering having many unemployed students, rote learning is a major issue that has now caught the attention of the Ministry of Higher Education.

It is with this understanding that the ministry is working together with AICTE to change the pattern of the engineering entrance exams. There have been many recommendations given to the committee. Open book exams are being given utmost importance as it will help them actually see where the student actually stands.

News18 cited sources in the committee as saying that the reforms are part of systemic changes that the AICTE is undertaking. Notably, the engineering curriculum was tweaked last year too. The changes suggested by the committee include introduction of educational experiences to teach and assess professional outcomes, open-ended experiments in laboratories, project-based learning modules and internship experiences, among others, the report said.

## हैकाथान 2018: कुली नहीं अब रोबोट उठाएगा इंसानों का सामान

<https://www.livehindustan.com/uttar-pradesh/story-hakatan-2018-competition-2027566.html>



अब वह दिन दूर नहीं जब सूटकेस, ब्रीफकेस और बैग लेकर चलने का काम रोबोट करेगा। आईआईटी के छात्रों ने ऐसा रोबोट तैयार किया है जो कहीं भी सामान ले जाने में सक्षम

होगा। यह रोबोट अपने मालिक को भी पहचानने में सक्षम होगा। भीड़-भाड़ वाली जगहों पर भी यह रोबोट सामान के मालिक की पहचान कर सकेगा।

आईआईटी में चल रहे हैकाथान 2018 प्रतियोगिता में छात्रों ने एक से बढ़कर एक मॉडल बनाए हैं। देश की नामचीन कंपनियां इन छात्रों को रोबोट की लागत कम करने में मदद कर रही हैं जैसे इस रोबोट की लागत अभी 40 से 50 हजार रुपए पड़ रही है, लेकिन इसकी कास्ट काम हो सकती है। गुरुवार को छात्रों ने रोबोट का सफल परीक्षण भी किया है। रोबोट में कई ऐसे उपकरण लगे हैं जिससे इसे कहीं भी लाने ले जाने में सुविधा होगी। यह पहाड़ी इलाकों में भी चल सकेगी। शोधकर्ता छात्रों के मुताबिक उबड़ खाबड़ वाले ऊंचाई के इलाकों में लोगों को अपने सामान लाने ले जाने में दुश्वारी होती है।

यह रोबोट पहाड़ों पर भी अपने मालिक के साथ आसानी से सामान लेकर चढ़ सकेगा। रेलवे प्लेटफार्म पर भी इसका इस्तेमाल किया जा सकता है, एक प्लेटफार्म से दूसरे प्लेटफार्म पर यह सीढ़ियों के सहारे चढ़ने और उतरने में सक्षम है या भीड़भाड़ वाली जगहों पर भी इसे ले जाया जा सकता है। रोबोट को संचालित करने वाले व्यक्ति की पीठ पर एक सेंसर लगा होगा उसी सेंसर से इसे कमांड मिलती रहेगी। व्यक्ति जिधर घूमेगा उधर रोबोट भी घूमेगा। एक ट्राली के आकार में इसे तैयार किया गया है।

बुनियादी जरूरतों को पूरा करने वाले विषय पर हो रहा है शोध : टीम लीडर विश्वजीत गोखले, श्रीकांत सांगलतुकर, जीन पॉल, प्रदीप चटर्जी का कहना है कि हैकाथान में छात्रों ने आम इंसान की बुनियादी जरूरतों को पूरा करने वाले विषयों पर शोध किया है। छात्रों के रिसर्च पर शुक्रवार को विशेषज्ञों की टीम फैसला लेगी। उन्हें पुरस्कृत किया जाएगा। विश्वजीत गोखले के मुताबिक देश भर की आईआईटी में यह प्रतियोगिता चल रही है ।

### **यह एयरोप्लेन कभी क्रैश नहीं होगा**

आईआईटी मद्रास के छात्रों ने ड्रोन को एयरोप्लेन में सेट करने में सफलता पाई है। यह एयरोप्लेन 100 किलोमीटर तक रास्ता तय कर सकती है। यह बिल्कुल हवाई जहाज की तरह चलेगी इसकी स्पीड भी अधिक होगी। अभी तक जिस ड्रोन का इस्तेमाल हो रहा है उसकी स्पीड कम है और उसके क्रैश होने की संभावना अधिक रहती है। एयरोप्लेन मॉडल के ड्रोन में क्रैश होने की संभावना बिल्कुल नहीं होगी। टीम में मद्रास आईआईटी के एयरोस्पेस में बीटेक कर रहे छात्र चित्रांश, अविनाश, ऐश्वर्या, कृष्णा और राहुल शामिल हैं। छात्रों का कहना है कि पहाड़ों, नदियों और भीड़भाड़ वाले इलाकों के लिए यह बेहद उपयोगी होगा। देश के सैनिकों को

पहाड़ों के बारे में इस ड्रोन से काफी जानकारी मिल सकती है जिससे वह अपना प्लान तैयार कर सकते हैं।

### मूक बधिर को पढ़ाएगा रोबोट

छात्रों ने रोबोट का ऐसा मॉडल तैयार किया है कि जो मूक बधिर लोगों के लिए लाभकारी है। रोबोट के रूप में दो कृत्रिम हाथ होंगे जिसे मोबाइल एप के जरिए जोड़कर मूक बधिर लोगों को पढ़ाया जा सकता है। इस रोबोट के संचालन के लिए सिर्फ लोगों को बोलना होगा। रोबोट बोली को सम्बंधित भाषाओं में अनुवाद करके मूक बधिर लोगों को इशारे से पढ़ा सकता है।

**June 21**

### **HRD secretary roots for reform in unscientific IIT-JEE**

<http://www.newindianexpress.com/specials/2018/jun/21/hrd-secretary-roots-for-reform-in-unscientific-iit-jee-1831208.html>

On the government's intervention, IIT Kanpur—the organising institute of JEE-Advanced 2018 — lowered the cut-off and included about 13,000 more students.



JEE-Advanced, the entrance test for admission into IITs, is “unscientific” and needs to be “reformed”, Union Human Resources Development secretary (higher education) R Subrahmanyam has told The New Indian Express.

The remark comes in the wake of the fiasco over this year's announcement of JEE-Advanced results with fewer students than required to fill about 12,000 seats being declared “qualified”.

On the government's intervention, IIT Kanpur—the organising institute of JEE-Advanced 2018 — lowered the cut-off and included about 13,000 more students in the list of about 18,000 earlier announced as having qualified.

“The problem arose because the entrance test pattern followed by the IITs is too strict and the difficulty level of questions is too high... they are probably testing scholars rather than students passing out of Class XII. IITs want to ensure that only those who can cope with the demanding course become part of the system but it needs to be examined,” Subrahmanyam said. “We need to understand that we have to look for undergraduate students, not Einsteins,” he added.

The issue of introducing changes in JEE-Advanced will be discussed in the next meeting of the IIT council—of which Prakash Javadekar is chairman—scheduled for August 21.

“The IITs and the ministry work hand in hand on several issues and the institutes are given due respect by the government. We hope that required autonomy will be allowed to maintain the level of excellence we have reached,” a senior member on the IIT exam organising committee said.

Experts said that because of the high difficulty level of the JEE-Advanced, only a small percentage of candidates would have qualified the test every year but for the grace marks awarded for errors in question papers.

“Since the question paper was error-free this time and no grace marks were given, such a small pool of students reached the overall cut-off of 35 per cent (for general category). But this will happen every year if things are not altered for good,” said an IIT professor in Delhi.

What the Government thinks is wrong with JEE-advanced:

The difficulty level of questions is too high.

Students are getting pushed to coaching.

The examination tests students at a much higher level than Class 12.

There is no scope for average students to get into IITs.

## **IIT-BHU Signs an MoU With Amazon To Establish Cloud Research Lab On AI & ML**

<https://analyticsindiamag.com/iit-bhu-signs-mou-with-amazon-web-services-to-establish-cloud-research-lab/>



The Indian Institute of Technology (BHU) Varanasi and Amazon Internet Services Private Limited (AISPL) signed a memorandum of understanding this week to develop cloud-ready job skills by providing access to the AWS Educate program. The key reason for this venture is to establish a Cloud Research Lab on artificial intelligence and machine learning.

According to a statement put out by the Press Information Bureau, Government of India and the Ministry of Human Resource Development, the Cloud Research Lab will provide students with opportunities to use AWS Cloud technology to pursue research initiatives that focus on AI and ML

innovation for India. The MoU was signed in the presence of Union Human Resources Development Minister Prakash Javadekar in New Delhi.

Speaking at the occasion, Javadekar said that Amazon joining hands with IIT-BHU for giving essential free services in cloud computing, datasets and other new technologies was an important occasion. He added that this would empower the students and faculty to do better and focused research. Javadekar added that Prime Minister Narendra Modi has always been pushing hard for new research and innovation efforts.



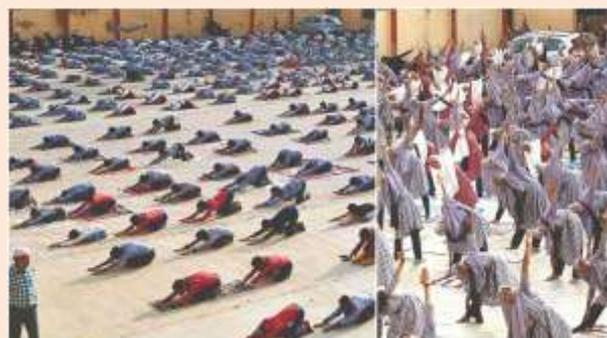
According to the MoU, IIT-BHU gains access to the resources in AWS Educate program and curriculum designed for higher education institutions to incorporate in their courses. This collaboration will also help accelerate cloud-related technical expertise for students and boost their readiness as they prepare to undertake the industry-recognised certification.

Professor Rajeev Sangal, Director at IIT-BHU said, “This MoU agreement helps our students develop technical proficiency with AWS Cloud skills and its advanced technologies in AI and ML before they graduate.”

AWS Educate is a global program that provides a robust set of learning content, resources, and AWS Promotional Credits for students and educators to gain hands-on experience with AWS Cloud services. Students and educators gain access to instructor-led classes, on-demand training, self-paced labs, as well as ongoing technical assistance and support.

## **International Yoga Day: India's 1st yoga university sees four-fold spike in admissions**

<http://www.dnaindia.com/ahmedabad/report-international-yoga-day-india-s-1st-yoga-university-sees-four-fold-spike-in-admissions-2627519>



Yoga Students practice yoga in FD High School, Juhapura

India's first private Yoga university — Lakulish Yoga University — has witnessed a four-fold rise in admissions since 2013. A total of 667 students took admission in 2017 as against 152 students in 2013. University officials believe that the main factors behind the increase in admissions are Centre's emphasis on yoga and the increase in lifestyle disorders.

Recently, the University Grants Commission (UGC) also directed the vice-chancellors of all universities to give 'suitable preference' in admission to graduate courses in Physiotherapy to candidates having requisite knowledge in Yoga.

Interestingly, senior citizens dominated the first batch of PhD students at Lakulish Yoga University. Twenty-three of the total of 27 students were retired people, mostly working with the government.



The university had started its first PhD programme in Bhakti, Karma, and Gyan Yoga in December 2015, much ahead of the notification by the UGC asking colleges and universities to promote PhD courses in yoga and encourage foreign students to take up the course.

Speaking about the same, Chandrasinh Jhala, Vice-Chancellor, LYU, said, "Due to lifestyle changes, yoga has seen a spur in terms of interest from students across all ages. We had witnessed a very interesting trend in the first batch of Phd last year. Most of the people were retired government officials. The main reason behind this is that BKG yoga is more theoretical — mudra and mantra-based — which is easier for senior citizens to practice. PhD in Ashtang Yoga, on the other hand, requires a lot of physical strength to perform the various asanas."

In 2017, maximum applicants were received for yoga teachers training course, followed by Bsc in Yoga education, and MA in yoga education. In 2013, no one registered for the teachers training course; however, 39 students enrolled for it in 2014, followed by 260 in 2015, and 261 in 2016.

## June 20

### **‘10% increase in MTech placement’**

<http://www.thehindu.com/news/cities/Delhi/10-increase-in-mtech-placement/article24205043.ece>

As many as 202 MTech students were placed this year as against 183 last year

Indian Institute of Technology Delhi on Tuesday said that while traditional disciplines of engineering like computer science and electrical engineering have registered good placements, interdisciplinary streams like energy studies, industrial tribology (ITMMEC), atmospheric oceanic science & technology and opto-electronics and optical communication have also seen a buoyant placement this year.

“IIT Delhi has recorded more than a 10% increase in placement for M.Tech students,” said the Registrar of IIT-Delhi.

“While energy studies, an interdisciplinary stream having courses spanning electrical engineering, physics and mechanical engineering, has registered a near 100% placement, other interdisciplinary areas have also mapped a vibrant placement trajectory,” the institute said in a statement. It added that as many as 202 MTech students were placed this year, compared to 183 last year.

In undergraduate placements, the institute said 540 students were placed out of which a maximum of 273 placements went to the core (technical) category followed by 187 and 133 placements in the IT and analytics sectors respectively.

The institute said over 950 job offers were received with many students bagging multiple job offers.

“Approximately 89.6% of students who availed training and placement services got placed. The remaining opted for higher studies/research or are preparing for civil services or are working on their own start-up ideas or got jobs through their own contacts/efforts,” said the Registrar.

### **Delhi Pollution: Unprecedented! Dust cloud envelops city in summers – what does it mean?**

<https://www.financialexpress.com/india-news/delhi-pollution-unprecedented-dust-cloud-envelops-city-in-summers-what-does-it-mean/1213154/>

Delhi Pollution: The national capital of Delhi has been enveloped by a thick layer of dust for the last five days.



Delhi Pollution: The city, which saw an acute air pollution crisis in winters last year, is in for quite a surprise as it has been hit by polluted summers.

Delhi Pollution: The national capital of Delhi has been enveloped by a thick layer of dust for the last five days. The city, which saw an acute air pollution crisis in winters last year, is in for quite a surprise as it has been hit by polluted summers – a time considered as off season here as far as poor air quality is concerned. The air quality in most areas of the city has stayed under ‘severe’ mark, the worst category in the pollution index.

However, an Indian Express report, citing a 2015 IIT Kanpur study, says that the capital’s air is almost as toxic in the summer. The IIT-K study has found that summer average for PM10 in Delhi is above 500 µg/m — five times the national average.

However, the current dust cloud is said to have been due to a dust storm that began over Rajasthan and was carried by strong westerly winds. The duststorm had hit the states of Punjab, Haryana, Delhi and western Uttar Pradesh. The duststorm resulted in pushing the local air down and preventing outside air from entering the region.

Besides soil, sand and rock particles, windblown dust also contains “re-suspended” dust kicked up by vehicles, digging or construction, The Indian Express reports. It hosts toxic materials, including heavy metals such as lead, chromium and nickel, says an IIT Delhi study

Experts suggest that incidents may become more common in future. Anumita Roychowdhury of the Centre for Science and Environment told The Indian Express that duststorm was different in scale and impact this year. “All of North India was enveloped, and this is something we need to prepare for in the future,” she said.

A senior official in the Delhi Environment Ministry that the absence of a longterm action plan to stop or reverse the process would result in a worse scenario. “These climatic conditions can’t any longer be seen in isolation, we need to start preparing for this to become the new normal,” the official told IE.

A smog had created an emergency-like situation Delhi last year, forcing the government to order holidays in school and public institutions.

### **NTA to conduct NEET and JEE Main in December 2018 and then again in May 2019, reports**

<http://www.timesnownews.com/education/article/nta-to-conduct-neet-and-jee-main-in-december-2018-and-then-again-in-may-2019-reports/243126>

National Testing Agency has been constituted to conduct the national level examinations like JEE Main and NEET. In the scheme of suggestions, it was proposed that NTA conduct NEET and JEE Main examinations twice a year.



NTA to conduct NEET and JEE Main in December 2018 again?

National Testing Agency, NTA is expected to conduct its first examination in the month of December 2018. As per the information available, NTA is expected to be fully operational within a few months and would conduct the JEE Main for the 2019 academic session in December 2018. The agency is also expected to conduct the first phase of NEET 2019 in December 2018. The official confirmation, however, has not been issued by MHRD as yet.

In a report published in DNA, Indian Institute of Technology, IIT Kanpur has been given the responsibility of setting up NTA for JEE examinations – the national level entrance test which is also a qualifier for JEE Advanced (the entrance test for admissions to various IITs.) As per the information shared, NTA would be ready to conduct JEE Main in December 2018 for admissions to 2019 academic session

The agency would also be conducting the National Eligibility cum Entrance Test or NEET undergraduate examinations which are presently conducted by CBSE (much like JEE Main). The initial proposal of NTA included a suggestion of conducting the entrance examinations twice a year so as to ensure that students have enough opportunities to crack the entrance test.

NTA has been approved by the cabinet in November 2017; the official notification of the agency has not been released as yet. The examinations that fall under the purview of NTA are JEE Main, NEET UG, CTET and UGC NET examinations. The actuals of the examinations, however, are not known as yet.

Please be informed that there is no official update from the institute or from NTA regarding the December 2018 examinations. While the examinations are likely, there is no clarity whether the exams would be conducted within this year or in a gap of 6 months in a year. Any updates on NTA and the ensuing examinations, as and when available, would be published here. Till then, it can be presumed that NEET 2019 and JEE Main 2019 would be conducted in May or June 2019.

## Another Blow to the Higher Education System: UGC Regulations Make Ph.D. a Mandatory Qualification for Assistant Professors

<https://www.newsclick.in/another-blow-higher-education-system-ugc-regulations-make-phd-mandatory-qualification-assistant>

“Increasing qualifications will not only delay entry into the profession, but also deny chance to bright candidates, who, because of socio-economic conditions, fail to do Ph.D.”



According to the new set of UGC regulations released by HRD Minister Prakash Javadekar on June 13, a Ph.D degree will be mandatory for both, direct recruitment as an assistant professor and promotion to assistant professor in the universities. These regulations will come into effect from July 1, 2021, once notified.

Although a master’s degree with NET qualification or Ph.D. will continue to be the minimum eligibility requirement for direct recruitment of an assistant professor in colleges, a Ph.D degree will be mandatory for promotion to the post of assistant professor (selection grade). It further mentions that the incentives to the teachers provided in earlier Regulations of 2010 and subsequent amendments have been retained. These include incentives for M.Phil/Ph.D.

The API (Academic Performance Indicator)-based PBAS (Performance Based Appraisal System) has, however, been removed. A new simplified teacher evaluation grading system has been introduced and ‘research score’ element has been added to encourage universities to improve research output. The promotion criteria under CAS (Career Advancement Scheme) for university teachers has been made more research-oriented, while in the case of college teachers, it is more focused on teaching. According to the press release, “For the first time provision for promotion in Colleges will be up to Professor level. [...] For the first time, weightages are assigned for CAS in respect of MOOCs and E-Content in Universities and Colleges.”

In February this year, the UGC (University Grants Commission) had announced Draft Regulations for the same. The Delhi University Teachers’ Association (DUTA), amongst other Teachers’ Associations (like FEDCUTA and PUTA), have termed both the sets of regulations (February and June 2018) as “retrograde”. DUTA, in its ‘Preliminary responses to the Draft UGC Regulations 2018’ stated:

“The effort to make PhD a mandatory qualification for recruitment of Assistant Professors is a cause for apprehension. It is a matter of concern that conditions are created in the Regulations by which

acquiring a PhD no longer benefits the teacher either at the entry-level or in service. Taking away the incentives of PhD and making it a mandatory requirement for direct recruitment would amount to delaying the entry of teachers to the profession by a few years till the acquisition of higher qualification. [...] It is ironical that on the one hand, the Draft Regulations make PhD a necessary precondition for Career Advancement Scheme to senior positions like Associate Professor and Professor, the same Regulations make it virtually impossible for teachers to acquire PhD while in service. Hence, there must not be any change in the qualification of Assistant Professor for purpose of direct recruitment at colleges and in University Departments.”

The document further mentions that, “The long-standing demand of teachers seeking the rollback of the pernicious system of API/PBAS for promotion of teachers has been met in the Draft Regulations 2018. However, a higher qualification (PhD in this case) is being mandated for promotion to Associate Professors in colleges: a change from the earlier CAS 2010.”

While speaking to Newslick, Abha Dev Habib, a professor in Delhi University, said, “Qualification at university and college level should remain same and should not be enhanced to require Ph.D. instead of post-graduation and NET. The disparity will unnecessarily create hierarchy between universities and colleges. Increasing qualifications will not only delay entry into the profession, but also deny chance to bright candidates, who, because of socio-economic conditions, fail to do Ph.D. – as it requires many more years of study. Facility like study leave to academicians help in earning higher degrees while doing a job. Also, as UGC Regulations are mandatory for universities and colleges across the country, raising the qualifications may create hurdles for many universities in hiring teachers. Universities and selection committees should have the responsibility and freedom of applying suitable screening criteria for shortlisting candidates on the basis of applications received.”

**Other key clauses in the new UGC regulations are:**

- A special provision has been made for recruitment of assistant professors in universities and colleges for Ph.D degree holders from a university/institution in the top 500 Global rankings.
- Up to 10 per cent of the existing sanctioned strength of professors in universities shall be appointed as senior professors in the universities. Senior professors in universities will be appointed through direct recruitment and through promotion under CAS.
- Universities will accord permission and provide need based facilities to colleges teachers to supervise Ph.D/M.Phil scholars.

Teachers’ associations, students’ organisations and activists have been fighting against the push towards increasing privatisation, commercialisation and ‘saffronisation’ of higher education. They have also been protesting against the ruling dispensation’s policies regarding graded autonomy, autonomous colleges, 70:30 formula and HEFA (Higher Education Funding Agency). The dire situation of higher education has been made worse by the changes in the 200-point roster, rampant ad-hocism, delay in pensions and promotions, lack of representation from SC/ST/OBC communities and other marginalised sections of society. Viewed in this context, the recent UGC regulations are revealed to be yet another blow to the higher education system under the Modi regime.

**June 19**

### **IIT Madras developing technology for waterways, ports**

<https://economictimes.indiatimes.com/industry/services/education/iit-madras-developing-technology-for-waterways-ports/articleshow/64641951.cms>



At present, the shipping ministry appoints international consultants to provide consultancy on various projects. IIT Madras had begun to replace some of these overseas consultants/technology providers.

The IIT Madras National Technology Centre for Ports, Waterways & Coasts (NTCPWC) recently established at the institute as the technological arm of the Union shipping ministry, is doing its best to boost the development of indigenous technology and expertise in India's port and maritime sector.

The unit will be focusing on a host of areas, including autonomous platforms for navigational and water-quality monitoring, night-time navigation in inland waterways, new indigenous dredging technologies for small ports and inland waterways and new concepts in breakwaters (structures that prevent waves from entering the harbour), among others.

"NTCPWC has a two-pronged approach: we want to consolidate to provide solutions to fulfil the technological requirements of the sector. We also want to continue as the leading solution provider in the Indian context," said K Murali, professor, department of ocean engineering, IIT Madras, and nodal officer, NTCPWC.

Since 2015, several collaborations between IIT Madras and the Union shipping ministry led to the establishment of NTCPWC in February 2018 at a cost of about Rs 70 crore the centre is expected to generate its own revenues at the end of three years.

The NTCPWC is advised by a project monitoring committee within IIT Madras and an oversight committee is appointed by the shipping ministry. The areas which NTCPWC plans to indigenise are port and harbour engineering, port structures and waterway terminals, port and inland navigation, dredging, simulation in physical and computer models and baseline and continuous monitoring of shipping channels and inland waterways.

At present, the shipping ministry appoints international consultants to provide consultancy on various projects. IIT Madras had begun to replace some of these overseas consultants/technology providers. With the formation of NTCPWC, this process will accelerate. "Understanding of local waters will be better with indigenous experts as the waves and waters differ from country to country.

This fact of understanding local waters has given us an edge," said Murali. The NTCPWC will also play a significant role on the human resources front by training manpower who can study the specific project and take appropriate decisions.

**June 18**

### **BLOCKCHAIN-IITS**

<https://www.indiatoday.in/pti-feed/story/blockchain-iits-1263635-2018-06-18>

A first-of-its-kind online course on 'Blockchain Architecture, Design and Use cases' will soon be available at IITs in Mumbai, Delhi, Kanpur, Kharagpur, Madras, Guwahati and Roorkee. The National Programme on Technology Enhanced Learning (NPTEL), an initiative of IITs and IISc-Bangalore to offer online courses and certification in various topics, has collaborated with tech giant IBM to offer the 12-week online course, a statement by IIT-Madras said. The course, to be available on the NPTEL website from July 2018, will prepare students for the demand for blockchain skills by covering both conceptual and application aspects of blockchain technology like crypto primitives, consensus, permissioned blockchain and used cases as well as research aspects. IIT-Madras NPTEL coordinator Prof Andrew Thangaraj said, "Content contribution by technology leaders to a course in cutting edge technology areas provides learners a better insight into its practical implementation. The blockchain course with IBM is the first in this genre and will encourage more companies to come forward to do the same." The course will be co-certified by IBM. NPTEL was initiated by seven IITs and IIS-Bangalore in 2003.

### **IIT Madras Incubation Centre sees increase in faculty joining startups**

[https://www.business-standard.com/article/companies/iit-madras-incubation-centre-sees-increase-in-faculty-joining-startups-118061500375\\_1.html](https://www.business-standard.com/article/companies/iit-madras-incubation-centre-sees-increase-in-faculty-joining-startups-118061500375_1.html)

The research activities and being part of a startup as a mentor or director are not two opposing work operations



There is an increasing interest among the academic faculty members to join the startups, especially those which are connected to the incubation centres of the institutes.

Five years back, about 15 IIT Madras (IITM) faculty members were involved in startups as founders or advisor/minority shareholders or mentors. It has grown up to over 60 faculty members directly involved in startups incubated at IIT Madras.

Roughly 33 per cent of the total portfolio of 150 deep-tech startups established at IITM Incubation Centre have IITM faculty members as founders or are involved as minority shareholders, said Tamaswati Ghosh, CEO of the Incubation Centre. Involvement of faculty in startups at IITM is one of the highest in the country, claims IITMIC (IIT Madras Incubation Cell).

"IITM has set a benchmark for translational research, which is very much evident in the growing number of spin-out companies from research labs & centres of excellence. Participation of faculty in startups at IITM is one of the highest in the country," she said.

One of the reasons is the changing perspective on the research in academia, said A Thillai Rajan, Professor in the Department of Management Studies at IIT Madras, who has been publishing reports related to the seed, venture capital and private equity funding in the Indian startup ecosystem for several years.

"While the career growth in teaching practice is still linked to the research works that the faculty does, and rightly so, engagement with translational research and its implementation in startups is increasingly accepted in the system," said Rajan, who in May, this year, announced launch of his startup YNOS Venture Engine CC Private Limited incubated at IIT Madras Incubation Cell. It aims to help startups growing and attracting funds using data analytics and machine learning.

The research activities and being part of a startup as a mentor or director are not two opposing work operations. Especially in deep-tech segments, a startup could be the translational part of the research that is being conducted in the institution. Establishing an enterprise is also not that difficult as earlier but at present, it paves way for more teachers to be part of startups.

While there is also a view that having a faculty as part of the startup, either as a director or mentor, it would help the startups from these university-led incubation centres attract investment or industry customer easily and it is not the only factor that attracts them, experts say.

While it cannot be a generalised view considering the varying nature of startups, some engineering, knowledge or technology intensive startups that involve solving complex problems with deep expertise required, faculty members as promoters and/or technical advisors gain a stronger technical footing, with product development aligned with the needs of the industry, said Tamaswati Ghosh.

Most of the companies in the IITMIC are working on niche and high tech areas, with products/solutions at least Technology Readiness Level 3-4 at the time of incubation. Hence, proof of concept (POC) and demonstration to industry (for pilot validation) can be faster.

The presence of faculty members in the startup team even as minority stakeholders can give confidence to funding bodies or agencies in the technology, even when the go-to-market is extended due to the more intensive technology translation cycles such Startups undertake, says the IITMIC.

Active participation of faculty members also gives the startups access to technology and product mentorship in the early stage when other sources are yet to match up.

Faculty members with strong agency and industry interactions in their own research are able to bring those connections to the startups which can then take the engagement forward with a natural referral guiding process.

Close to 37 per cent of the 150 incubatees in the IITMIC are external entrepreneurs but they all work on technology innovations.

"We incubate around 30-40 new companies every year on an average. Of the 150 cos, about 40-46 have graduated. There would be about 82-84 cos in the incubator. The graduated companies continue to be in the Research Par," Ghosh explained.

### **Open house session for IIT aspirants**

<http://www.newindianexpress.com/states/odisha/2018/jun/18/open-house-session-for-iit-aspirants-1829740.html>

The Indian Institute of Technology (IIT), Bhubaneswar on Sunday organised an open house counselling and interaction session for candidates who have qualified the JEE-2018 (Advanced) as well as those going to appear the test in 2019.

IIT, Bhubaneswar Director Prof RV Rajakumar gave a presentation on IIT system and spoke about the strides being made by the premier institute on various fields including education, research and infrastructure building. Experts spoke about programmes of study and general procedures to be followed for admission and counselling at IITs.

The girl students were also counselled by the JEE help desk team to fill as many choices as possible to maximise their chances of getting a seat in IITs. Various financial assistance schemes for students were also presented by SBI Regional Manager S Panigrahi.

Apart from Odisha, students and their guardians from Telangana, Andhra Pradesh, Maharashtra, West Bengal, Jharkhand, Chhattisgarh, Rajasthan and Karnataka also attended. IIT, Bhubaneswar would conduct reporting centre activity for candidates who have qualified JEE Advanced 2018 on its Argul campus from June 28 to July 20.

### **June 17**

### **IIT to host course on construction technology**

<http://www.thehindu.com/news/national/andhra-pradesh/iitt-to-host-course-on-construction-technology/article24183332.ece>

IIT Tirupati and IIT Madras will be jointly organising a short-term course on 'GFRG Building Design and Construction' in Tirupati from June 18 to June 20.

The course aims to train professionals such as architects and engineers. One entire day during the three-day programme would focus on the live exposure on GFRG building construction at IIT

Tirupati's transit campus, where five multi-storey hostel buildings and a residential apartment are being constructed, said a press release.

As many as 65 professionals from companies such as L&T, Godrej properties, L&W, and ULCCS will take part in the event.

**June 16**

### **What makes some varieties of rice resistant to drought?**

<https://researchmatters.in/news/what-makes-some-varieties-rice-resistant-drought>



In thirty years, the global population of 7 billion will increase by 30% to a staggering 9.1 billion people. Feeding everyone with the same amount of land that is available today will undoubtedly be a challenge. Along with expanding cities gobbling up agricultural and forest land, changing climatic conditions with frequent spells of droughts also spell doom for food production. Hence, researchers around the world are developing drought-resistant varieties of food grains. In one such attempt, researchers at the Indian Institute of Technology, Delhi, offer critical insights into the intrinsic nature of certain types of rice that can resist drought.

Rice, a water-intensive crop grown by humans for thousands of years, is a staple in many countries and the Asian rice, *Oryza sativa*, is the most widely cultivated rice of the genus *Oryza*. The crop fails during a drought, and water scarcity affects more than 23 million hectares of rainfed rice production areas in South and Southeast Asia. While some varieties have the potential for drought adaptations, the researchers of the study are exploring the mechanism behind this through phenomics—the study of interactions of genes with changes in the environment.

“India has 34.5% of total irrigated area, which indicates that the rest of the farming area depends mostly on rain. Even after constructing 91 major reservoirs, only 162 billion cubic meters of water can be stored. Recently in India, eleven states out of twenty-nine were affected by drought, resulting in a 40% yield loss, amounting to \$800 million. Therefore, our work aims at exploring the traits that can be used in selecting drought-resistant crop”, says Prof. Archana Chugh, from IIT Delhi and an author of the study published in the journal *Plant Physiology and Biochemistry*. The study was supported by the National Agricultural Science Fund (NASF) under the Indian Council of Agricultural Research (ICAR).

The researchers of the study investigated three varieties of rice; Sahabghadhan—a local drought-tolerant variety, and two drought-sensitive varieties: IR64 and MTU-1010. The researchers simulated

the drought condition by cutting off water supply to these plants for five consecutive days. They then explored the genetic factors that help these varieties tolerate drought and correlated them with the plant's response to the applied stress with the aim of developing a reliable 'marker' for drought resistance, which indicates the plant's ability to survive periods of extreme water scarcity.

“A successful marker can be helpful in selection of drought-tolerant varieties at different levels like morphological, anatomical, biochemical, physiological and molecular. They should be easily detectable and stable. Secondary traits such as root attributes, xylem diameter, stomatal aperture, proline, and malondialdehyde can be used as selection criteria by plant breeders for high yield production and drought tolerance in rice”, explains Prof. Chugh in an interview with Research Matters.

But, what exactly happens to a plant during a drought? Lack of adequate water limits its growth and affects its morphology, physiology, and biochemistry. Leaves reduce in size, the stem and roots elongate, there is a reduction in photosynthesis, transpiration and biomass, and an imbalance in nutrients. The roots are the first to experience stress due to drought as they grow beneath the soil. Hence, to survive, they either become more dense, holding the soil together and maintaining the water potential or grow deeper to access more water.

The authors found that Sahabghidhan, the drought-tolerant variety, continued to grow its roots during the stress, while the drought sensitive varieties showed a reduction in the rate of growth. Also, they observed that in Sahabghidhan, the xylem vessel, which carries water in plants, had reduced its area and its numbers to survive the stress. This modification maintains water supply by avoiding the formation of air bubbles, known as cavitation.

The study also found a significant correlation between the morphological traits in these roots and the expression of aquaporin genes. Aquaporins are proteins that form pores in cell membranes. They regulate water uptake along with other small molecules. The researchers investigated two aquaporins, OsPIP 2;5 and OsNIP2;1, and found that the drought tolerant variety showed an increase in OsPIP2;5, which may be useful to increase the intake of water and thus supply to aerial organs. A decrease of OsNIP 2;1 in the same plant indicates another method of drought avoidance—decreasing the membrane permeability to avoid excess water loss.

Correspondingly, the drought sensitive variety showed a significantly lower content of proline—an amino acid used to synthesise proteins, than the drought-resistant variety. The researchers believe this is because the proline proteins assist in maintaining the stiffness of cell membrane during water deficient periods, enabling the cell to carry on functioning. As a result of drought, plants produce malondialdehyde (MDA), a known marker of oxidative damage, a condition wherein due to chemical imbalances, the plant is unable to detoxify itself of damaging elements. Oxidative damage can eventually lead to cell death. A 1.5 fold reduction in MDA content in Sahabghidhan, as compared to the drought sensitive variety, implies the former's superior resistance to drought.

“Improvement of drought tolerance in rice is a challenging task due to the high complexity of the traits and poor understanding of plant response against drought. Wide knowledge of various attributes can achieve yield stability under most devastating drought stress. Our study contributes more towards selectively breeding from the thousands of cultivars available,” says Dr. Chugh when probed about the

potential for findings of the study. Marker-assisted selection (MAS), discussed in this research, can help feed the millions by intelligently selecting plants with desired traits.

### **IIT Kanpur to conduct air quality study in city**

<http://www.tribuneindia.com/news/chandigarh/iit-kanpur-to-conduct-air-quality-study-in-city/606592.html>

Highest-ever level of PM2.5, that can reach lungs, blood system



A Home Guards jawan regulates traffic during dusty weather in Chandigarh on Friday.

After Chandigarh witnessed air pollution at record high in the past two days, the UT Administration has decided to get a fresh study on the city's air quality conducted from the experts of IIT Kanpur, who are already conducting a similar study in Delhi with the support of the Union Government.

Confirming the development, a top UT functionary told The Tribune here on Saturday that IIT Kanpur would use a spectrometre and other monitoring devices to quantify the various factors in higher level of PM2.5.

The development assumes significance as Chandigarh had witnessed the highest-ever concentration of PM2.5, a pollutant which is so fine that it can reach our lungs directly and then the blood system, both on June 14 and 15.

"Air quality index of Chandigarh was reported to be on higher side which was a matter of serious concern," the functionary said.

Even during a recent study at the local level, it was found that the air quality of Chandigarh was deteriorating, especially in the months of winter. "There are various reasons for deteriorating air quality, including higher population and vehicle density, location of the city and industrial surroundings, temperature effect, human activities, crop harvesting seasons and effect of pollens," the study has revealed.

"It is necessary to conduct study to know the proportionate of various factors in the higher value of PM2.5 being reported in the city," the functionary said.

Meanwhile, for tackling the air and noise pollution, the UT Administration has also planned a time-bound switchover to use of CNG by public transport vehicles and giving priority to developing

footpaths and cycle tracks to reduce dependence on motorised vehicles on priority. “For this purpose, a comprehensive urban air quality management strategy will be formulated,” the officer disclosed.

It was found that noise pollution levels in the city are also increasing. To curb this, the UT is contemplating that while granting permission of use of loudspeakers to residents on the occasion of events by the Deputy Commissioner or Sub-Divisional Magistrates, levels of noise would also be prescribed in their permission letters so that they should comply. These would also contain instructions to the DJ and sound music companies that if they do not comply the prescribed limits they will face action, including cancellation of their licence or permission to operate.

“The SHOs of respective police stations and officials of SDM offices will also be made aware about the prescribed limits of decibel levels of noise, so that they can monitor the same, taking care to be cautious and sensitive in their approach and not unnecessarily intrusive,” the functionary revealed.

### **Plan in the offing**

The UT Administration, in a bid to curb air and noise pollution in Chandigarh, is also contemplating making the city roads free of human or animal propelled rickshaws/carts and replace these with e-rickshaws and e-carts. “It is a roadmap for four-five years starting with replacement of animal-driven carts. If we can achieve it, Chandigarh will be the first city to do it,” an officer claimed.

### **IIT Hyderabad builds dataset to understand online user-engagement**

<http://www.thehindu.com/sci-tech/science/iit-hyderabad-dataset-to-understand-online-user-engagement/article24180468.ece>



The annotated datas can be used by deep-learning frameworks employed in AI to learn the model accurately.

DAiSEE documents and annotates four complex markers of engagement

Understanding user engagement in online interactions is important in many contexts, with online shopping, advertising, e-learning and healthcare being just a few sectors. Now, IIT Hyderabad has built DAiSEE (Dataset for Affective States in E-Environments), the first multilabel video-classification dataset for recognising boredom, confusion, frustration and engagement. The dataset comprises 9,068 video snippets captured from 112 individuals. For each of these affective states, there are further four levels of labels – very low, low, high and very high. These labels are provided by observing the viewer’s reactions.

### **Multiple labels**

There can be multiple labels assigned to a snippet: “For example, when understanding some complex terminology from videos, a person could display high engagement and still be confused or frustrated at the same time,” explains Vineeth N. Balasubramanian of Department of Computer Science and Engineering at IIT Hyderabad who has led the research. “The combination of data and annotations related to user engagement sets the platform for DAiSEE as a specialized dataset,” he adds in an email to The Hindu. The dataset is available to the public at the website <http://www.iith.ac.in/~daisee-dataset/>

Recognising, interpreting, processing and simulating human affective states, or emotions, is an important area of research known as affective computing.

The usual emotions studied include anger, disgust, fear etc. “For a large part, researchers have focused on these basic expressions, we chose to go beyond,” says Dr Balasubramanian.

For instance, in a classroom, the student could be engaged with the lesson, or bored, frustrated or even confused. “Subsequent affective states can be viewed as a result of these four,” says Dr Balasubramanian. For instance, if a person is bored or confused, they could be distracted easily. “The affective states we have considered in DAiSEE are a bit more subtle than the six basic expressions,” he adds.

In the study, people were invited to voluntarily participate in an experiment whether they would watch certain videos and then respond to a questionnaire. The consent of the participants to share the videos was taken. They were shown one educational video and one recreational, so that both focused and relaxed settings may be captured. This gave the researchers 9,068 videos of 10-second length, from which they extracted 27,000,000 images/video frames. “This is larger than most contemporary video datasets,” says Dr Balasubramanian.

### **Crowd voting**

The researchers used a crowd-voting method to annotate the dataset, and the best possible answers were picked using a statistical aggregation method (the Dawid-Skene aggregation). This uses an algorithm to consider the quality of the responses, which are then weighted accordingly to compute the resultant response.

The annotated data can be used by deep-learning frameworks employed in AI to learn the model accurately. In many applications, it is important to learn user engagement so that the algorithm can respond and interact with the user. “We hope for DAiSEE to be a large stride in the direction of promoting a health and improved experience of personalized interaction with such digital systems,” he says.