Newspaper Clips
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May 4

Modi government prepares to change higher education forever in one sweeping strike

https://economictimes.indiatimes.com/news/politics-and-nation/centre-drafts-bill-for-single-higher-education-regulator/articleshow/64023596.cms

Within days of indicating that it may introduce a bill in Parliament to create a single higher education regulator before the 2019 general elections, the Modi government has drawn up the draft legislation.

Accessed by ET, the draft legislation for setting up a 'Higher Education Evaluation and Regulation Authority, 2018' (HEERA) or Higher Education Regulatory Council (HERC), says that once the new regulator is created, existing regulatory authorities such as the University Grants Commission (UGC), All India Council for Technical Education (AICTE) and the National Council for Technical Education (NCTE) will be scrapped.

Signifying a shift in the higher education regulatory regime, this draft Bill calls for a new regulator that will mentor institutes, besides defining academic standards. While it won't have grant giving powers, HEERA will be armed with zero tolerance mechanisms for violations, including provisions to terminate the affiliation of an institute.

The draft Bill is being discussed by the government and is being scrutinised by the Prime Minister's Office; it will be a key discussion agenda for a policy retreat that the HRD ministry is planning during month-end in Mussourie for drawing up a New Education Strategy for 2022. The HRD ministry had announced a 40-point action plan in April where it said that it was planning to bring the HEERA Bill in Parliament by September 2018.

WHAT'S IN THE BILL

The HEERA Bill says that the new authority will focus on setting quality standards for institutions, specify learning outcomes, lay down standards of teaching assessment and research and evaluate the yearly academic performance of the institutes on clearly laid criteria.

ET has learnt that a number of committees have been set up in the UGC to develop the academic standards and learning outcomes for each course. These will become part of the HEERA regime, sources said.

The Backstory

If implemented, this could be the single biggest reform under the Modi regime which can change the face of higher education

Several committees including the Prof Yash Pal committee and the National Knowledge Commission of the UPA era and the Hari Gautam panel in the Modi regime have recommended the same, but it didn't take off

It would eliminate all existing overlaps in jurisdiction of different regulatory authorities, and do away with regulatory provisions that may no longer be relevant to the changed scenario

UPA-II's HRD minister Kapil Sibal had tried to introduce a legislation for a similar National Council on Higher Education & Research, but it hit roadblocks as well

The decision to go ahead with the idea was taken after a meeting on education chaired by the PM on March 10, 2017

Budget 2017 had also announced an overhaul of the UGC and AICTE, starting off a train of reform measures

Central or state government grants to an institute will require that they meet the standards outlined by the HEERA. Funding will be largely vested with the HRD ministry which will release grants based on annual action plans presented by institutes rather than just dole out money.

But there's still debate over how to bring state universities within the ambit of HEERA, and whether regulation of teacher education institutes should be within its purview.

Unlike the UGC Act, the new single education regulator will be backed by more teeth. It will be able to bar an institute from admitting new students in a particular course if it is established that it has violated the quality benchmarks. It will also be able to terminate affiliation of such an institute and provide for measures to safeguard interest of the enrolled students.

HEERA may provide expert advice 'to any institution or its departments for 'promoting excellence'. If any university is found to grant affiliation to a course in contravention of regulations of the HEERA, it may be faced with a penalty, fine, withdrawal of degree granting powers and in dire cases, even a direction to cease all operations. A three year imprisonment has been proposed for those that fail to comply with the penalty imposed. HEERA, like UGC, will specify and notify degrees and their nomenclature, have the right to bring a variety of regulations for maintenance of standards at varsities. It will come under CAG's scanner and will also take directions from the Centre on policy matters.

The ten-member HEERA will have an eminent academician as a chairperson, who will be assisted by two Vice Chairpersons, three members who may have served at least for five years as Directors of an IIT/IIM/IISc/IISER/IISc, another three members who may serve for a minimum of five years as a Vice chancellor of a reputed state or central university.

IIT Goa's permanent campus to be 'green'
https://timesofindia.indiatimes.com/city/goa/iit-goas-permanent-campus-to-be-green/articleshow/64021172.cms

The state government has finalised a plot of 320 acres to house the permanent campus of the Indian Institute of Technology (IIT), Goa. The plot falls partly in Cotarli in Sanguem taluka and partly in Nagvem, Quepem. Sources told TOI that the state government has forwarded the file to the Union ministry of human resource development (HRD) for its approval.

Sources in the state government said that nearly the entire plot, barring a few stray patches, is already in the possession of the state government, and the process of handing it over to IIT is expected to be completed within three months.

Some of the land is hilly, and IIT is expected to get around 240 acres of built-up space to contruct its buildings. Sources said that since the land available is limited, IIT will be expected to rent out premises from local residents for its faculty members and other such uses. This arrangement is set to help resolve the issue of land availability, provide revenue to locals, and also promote integration of the IIT with the local population.

Sources said that IIT is considering a cap on the maximum capacity to which it will expand operations. The institute wants to develop its campus into a green, environmentally-sustainable one, and not put undue pressure on the local ecology or resources.

Officials said that IIT is also identifying areas of concern like garbage management and water issues, so that its faculty and students work to provide scientific solutions to the state's problems.

IIT-Goa began operations from July 2016 and the institute is currently functioning from its temporary campus at the Goa Engineering College, Farmagudi.

Sources said that once the land for the permanent campus is handed over to the IIT, the state government will begin work on providing a four-lane access road to the plot.

UGC removes over 4,000 journals from its approved list

https://scroll.in/latest/877882/ugc-removes-over-4000-journals-from-its-approved-list

This comes as a blow to professors whose works have been published in these journals.

The University Grants Commission on Thursday removed over 4,000 journals from its approved list. These include titles from Oxford University, Harvard Universities, the online version of Economic and Political Weekly, the National Council of Educational Research and Training, the Indian Council of Historical Research and Banaras Hindu University.

This comes as a huge blow to professors whose works have been published in these journals. Their publications in these journals will no longer be taken into consideration in determining the academic performance indicator score.

The journals have been removed after these were found to be "of poor quality", providing "incorrect/insufficient information" about themselves or for making "false claims", said the UGC. Of the 4,305 titles removed from the list, 1,447 have been classified as social science journals, 1,120 as

arts and humanities journals and the rest as science. The commission added that it would review 191 more journals.

May 3

JEE Advanced 2018 registration starts: Visit jeeadv.ac.in to register; IIT Kanpur is exam organiser; also check jeemain.nic.in

http://www.zeebiz.com/india/news-jee-advanced-2018-registration-starts-visit-jeeadvacin-to-register-iit-kanpur-is-exam-organiser-also-check-jeemainnicin-45317

JEE Advanced 2018: This year, the JEE Advanced 2018 examination is being conducted by IIT Kanpur. Those who qualify the exam will be eligible to get enrolled in the bachelor's, integrated master's and dual degree programmes (entry at the 10+2 level) in all the IITs.

JEE Advanced 2018: Registration process for Joint Entrance Examination (JEE) Advanced started today, Thursday, May 2, 2018 at its official sitejeeadv.ac.in. Successful candidates for the JEE Main 2018 examination are eligible to fill the form. Jee Main results 2018 of Paper I was released by the Central Board of Secondary Education (CBSE) on April 30, 2018, on its official website jeemain.nic.in or cbseresults.nic.in and the process of selection has now taken the next step.

To register for the JEE Advanced 2018 exam, which is to be held on May 20, the candidates must visit jeeadv.ac.in and fill the online form. This year, the JEE Advanced 2018 examination is being conducted by IIT Kanpur. Those who qualify the exam will be eligible to get enrolled in the bachelor's, integrated master's and dual degree programmes (entry at the 10+2 level) in all the IITs.

JEE Advanced Registration Procedure: 3 Simple Steps to be followed:

Step 1. For JEE (Main) Qualified Candidates: Login with JEE (Main) 2018 Roll No and JEE (Main) 2018 Password. On successful login, all personal, academic and contact details; as furnished to JEE (Main) 2018 will be displayed. Candidate will be given an option to provide an additional phone number and email id. Candidates are required to furnish additional information for JEE Advanced 2018 like choice of examination cities (05 choices), class XII (or equivalent) examination Roll no. etc.

For Foreign Candidates (Direct Apply): Fill online Registration Form and Note down Login ID and Password for subsequent login.

Step 2. Upload Scanned Certificates: Upload the scanned copies of following certificates and they are Class 10th or Birth Certificate, Class 12th (or equivalent) Certificate, Category Certificate, an additional category Certificate (Optional), PwD Certificate, Scribe request letter, DS Certificate, OCI Card / PIO Card.

Step 3. Pay Registration Fee: Registration for JEE (Advanced) 2018 will be considered to be complete only after successful completion of step 3 (i.e., payment stage). The admit card will be issued only to those candidates who have successfully completed all the three steps of JEE (Advanced) 2018 registration.
Note: After registering for the exam, don't forget to revisit the webpage again. After visiting the webpage, download the Registration Details with the Unique Registration Number.
Process of Exam: The JEE Advanced 2018 exam will be conducted in two sittings, Paper 1 and Paper 2 from 9 am to 12 pm and 2 pm to 5 pm respectively on Sunday, May 20, 2018. This will be a fully computerised exam.

IIT Kanpur in its JEE Advanced 2018 statement on official website jeeadv.ac.in says, "As per an MHRD directive candidates can approach any Kendriya Vidyalaya (KV) and Jawahar Navodaya Vidyalaya (JNV) in their vicinity and request some time on their computer facility for practicing on any of the Mock tests (available at jeeadv.ac.in) to become familiar with the Computer-Based-Test environment for JEE (Advanced) 2018. To prevent misuse of this, the candidates are requested to take a print-out or any other proof of their completed registration for JEE (Advanced) 2018 along with a valid photo ID. The candidates are also instructed NOT to request the KV and JNV authorities for allowing any of the relatives inside the School premises."

The JEE (Advanced) 2018 will be held on Sunday, May 20, 2018. The entire JEE (Advanced) 2018 Examination will be conducted in fully computer based test mode.

Rote learning must be discouraged-AICTE Chairman
https://www.bignewsnetwork.com/news/257173471/rote-learning-must-be-discouraged-aicte-chairman

"Integrity is the pillar of excellence in academia and research", echoed eminent leaders from higher education and research institutions, at the country's first 'Academic and Research Integrity Conclave 2018', which the Capital hosted, today.

Speaking at the inaugural session, Chief Guest Prof. Anil D. Sahasrabudhe, Chairman of the All India Council for Technical Education, said, "The faculty and researchers indulging in plagiarism will be punished as per the new UGC regulations, which is a positive aspect of the change that has happened in our higher education system. In this context, today's conclave becomes very important. It can really encourage people to understand what is plagiarism, how to avoid it and how do we use software to check it. And these are areas that our administrators, faculty members and related academic departments, need to be trained in."

Further he emphasised on excellence to be achieved through integrity and said, "Rote learning must be discouraged, students need to become original thinkers. AICTE vouched for a change in examination system, which needs to have a vision for evaluating the outcome of education and learning."

Additionally, the AICTE Chairman backed the government's initiative of giving autonomy to select universities and colleges based on NAAC accreditation, which according to him, will promote a culture of honesty and academic integrity among students and educationists.

Turnitin, leader in providing academic integrity solutions, globally, for over 20 years, organised this conclave, with the aim to focus and deliberate on role of integrity in higher education and research to achieve excellence.

The conclave witnessed participation of over 30 prominent academicians and researchers from leading institutions including IIT Delhi, Jawaharlal Nehru University, IIT Kanpur, IIT Bombay, NIT Kurukshetra, Jamia Hamdard, Indian Council of Medical Research and Educational Consultants India.

While delivering his opening remarks and emphasising on the need for the conclave, Marc Daubach, CRO

SVP-Customer Success, Turnitin LLC, said, "The need of the hour in Indian education system is to create the awareness around academic integrity, policy to support for higher returns from genuine higher education and research work. The starting points require education across all levels to understand true benefit of building a culture promoting academic integrity.

Technology tools can assist in promoting academic integrity but in and of themselves are not complete solutions. The best scenario is when technology assists bigger cultural commitment at an institution. Technology might assist in discovering academic misconduct through plagiarism and authorship. But, when technology tools are weaved into holistic academic integrity solution, they have the power to help promote cultural change."

The conclave addressed meaningful conversations about academic and research integrity in India, and its wider implications for academic and research excellence. The broad theme captured during the conclave included discussion on topics such as: challenges and opportunities of the Indian academic and research ecosystem, integrity as a pillar of excellence in academia and research, issues around academic integrity and excellence including the challenges of promoting original thinking, key pedagogical interventions required for excellence in the higher education system, best practices and technology tools to check content submissions, facilitating environments to encourage research authorship and increase India's research output, implications and directions for administrators and policy makers.

The event also witnessed two panel discussions with prominent academic leaders from College of Engineering, Pune, IIT Bombay, FORE School of Management, Indian Council of Medical Research and Society for Scientific Values.

In India, more than 400 institutions subscribe to Turnitin's services, including leading institutions like IISc, IITs and IIMs. Even research institutions like CSIR and ISRO are subscribing to its services to

promote academic and research integrity. It has indexed over 65 billion web pages and 170 million journal articles, so far, in the country.

Tata Memorial Centre, IIT-Bombay sign cancer research MoUs

https://www.hindustantimes.com/mumbai-news/tata-memorial-centre-iit-bombay-sign-cancer-research-mous/story-OuqP0AIx88yvJN8dJNp6uK.html

The DNA samples from tumours of patients with major cancers such as breast, cervical, ovarian and head and neck, will be studied at TMH.

The Tata Memorial Centre (TMC) and the Indian Institute of Technology-Bombay (IIT-B) have joined hands to conduct a large scale research of 'genes and proteins' found in tumours of cancer patients.

While the field of study known as proteogenomics is paving the way worldwide to find newer medicines and diagnostics for cancers, it is for the first time that it will be undertaken in India on such a big scale, said TMC doctors.

"Till now, we were only studying the DNA (Deoxyribonucleic acid) from samples of a patient's cancer tissue. However, research has suggested that studying all the proteins from the cancer tissues is equally important," said Dr Sudeep Gupta, medical oncologist at Tata Memorial Hospital (TMH), Parel, which is run by the TMC.

"Just the studying of the DNA and RNA from the samples may not always give a correct picture of what may be happening at the cellular level of cancer cells," he said.

The DNA samples from tumours of patients with major cancers such as breast, cervical, ovarian and head and neck, will be studied at TMH. The protein levels from the same samples will simultaneously be studied at IIT-B.

The two institutes have signed a memorandum of understanding with the US-based National Cancer Institute to avail their expertise for the study. Doctors said that a study on this scale will in future find new treatments and diagnosis for patients.

Dr Gupta said it will take years for the results of the research to be used in the realms of patient care as the data will need to be analysed thoroughly. He, however, said that proteogenomics is one of the promising approaches to tailor 'personalised regime' for cancer patients as against the one-size-fits-all approach followed for treatment of many cancers.

"Precision medicine is when cancer treatments for patients is based on a genetic and protein level understanding of their disease. Once we have the data collected, it will help us find new targets and diagnostics specific to each cancer and its subtypes," Dr Gupta said.

Mumbai: IIT-B researchers develop steth that can filter noises

http://www.freepressjournal.in/mumbai/mumbai-iit-b-researchers-develop-stheth-that-can-filter-noises/1269632

The two researchers, Adarsha K and Tapas Pandey, and one Senior Executive Officer (SEO) of Biomedical Engineering and Technology incubation Centre (BETiC) at IIT Bombay Dr Rupesh Ghyar

have developed a device which can be attached to conventional stethoscope to enable it noise filtering, sound amplification, recording and playback and visual representation of heart and lung sounds.

"Heart and lung diseases have become the top causes of death in India and require effective auscultation (listening to chest sounds) for correct diagnosis. Conventional stethoscopes used by doctors require considerable training and concentration to identify the relevant sound patterns, especially in noisy environment," said one of the researchers Adarsha K, who is the CEO and co-founder of Ayu Devices Pvt. Ltd.

The device can be used in primary healthcare centres to record abnormal sounds, which can be sent to expert physicians for further diagnosis. The digital stethoscope at present is being used by Dr. Nambiraj Konar, consultant anesthesiology at Reliance Hospital. Dr. Konar said the device is very much useful for every medical practitioner including interns and seasoned doctors.

"With the help of this device, one can clearly listen to auscultation of heart and lung sound. This device is very much helpful for Accredited Social Health Activists (ASHA) workers in rural areas which lack expert medical doctors. So they can record the abnormal sounds of heart and lung, and send it to expert physicians for further diagnosis," said Dr. Konar.
This can overcome the problem of low ratio of physicians to number of people in India. The auscultated sounds can be included in the medical records of patients. Their repository will enable rapid learning curve for medical students.

The respirologist at PD Hinduja Hospital, Dr. Lancelot Pinto, said, "The device has an ability to dampen the surrounding noise. So if you are auscultating at crowded place, this device is very much useful for doctors to diagnose even the minor disease of heart and lung that can be missed out if only conventional stethoscope is used to auscultate. A seasoned doctor can pick up the abnormal sound because of the experience but it was difficult for them to teach students. So, it is very much useful while teaching a student to pick up the abnormal sound of heart and lung."

As of now the sound recorded cannot be transferred wirelessly but the next version will be bluetooth enabled, said Dr. Pinto.

IIT-B study says flyover on Mumbai's Peddar Road could reduce air pollution

https://www.hindustantimes.com/mumbai-news/iit-b-study-says-flyover-on-mumbai-s-peddar-road-could-reduce-air-pollution/story-9rrTexJovHZkVu0a0yzsxH.html

Air pollution levels in south Mumbai's Worli, Haji Ali and Peddar Road could rise by 65% in the next seven years.

Air pollution levels in south Mumbai's Worli, Haji Ali and Peddar Road could rise by 65% in the next seven years, as more vehicles clog these arterial roads, a study by the Indian Institute of Technology-Bombay has found.

One solution, the study said, is a viaduct or flyover on the road to bring down the congestion — a solution the state government had proposed and then struck down two years ago after opposition by residents of the area.

Using air quality modelling studies, a six-member team from the institute found the levels of oxides of nitrogen (NOx) will increase from 75 micrograms per cubic metre (μg/m3) in 2015, to 124μg/m3 in 2025 and 201μg/m3 in 2035. The annual permissible limit set by the Central Pollution Control Board is 40μg/m3 .

NOx levels are projected to rise to 1.6 times in 2025 and 2.6 times in 2035, against the 2015 levels.

Cars, trucks and power generation plants emit oxides of nitrogen (NOx), of which nitrogen dioxide (NO2) is the most common type. Exposure to NOx affects the human respiratory system severely, while NO2 emissions are harmful especially for people with asthma, children, and the elderly.

The study proposed a viaduct to reduce traffic, as in the area, vehicles are the only major source of air pollution. "No major industries are situated in this area. To reduce air pollution due to traffic, secondary control systems such as selective catalytic systems or oxidizing agent, should be used at the emission source," said Awkash Kumar, the lead investigator, and a former PhD student at the Centre for Environmental Science and Engineering, IIT-B.

"An increase in the density of vehicles is bound to increase NOx levels, which is detrimental to health."

The study recommended the construction of a road viaduct from Haji Ali junction to Marine Drive and Chowpatty as most vehicles on Peddar Road and Tardeo Road go directly to Chowpatty.

"Constructing the Peddar Road flyover, or even an underground tunnel will bring down traffic congestion and pollution by 40% to 50%," said SL Dhingra, institute chair professor, Transportation Systems Engineering, department of civil engineering, IIT-B. "These are the only two ways that will help the situation."

The Maharashtra government had proposed a 4.1km bridge on Peddar Road, from Girgaum Chowpatty to Haji Ali junction in 2000. However, following opposition from residents, including singer Lata Mangeshkar who lives in a building on the road, the state scrapped the plan in 2016.

Dhingra, who was the principal investigator for that proposed viaduct, said he had also suggested congestion pricing for vehicles going towards south Mumbai. "Even then, those roads were choking; it's worse now. It is time the residents become aware and realise that an increase in vehicles and consequent rise in emissions will affect their health more than anyone else."

The study assessed long-term impact of the traffic in terms of NOx, carbon monoxide (CO) and particulate matter (PM) emissions from vehicles by identifying 12 roads around the Worli area, with a large number of vehicles making their way to Marine Drive and Chowpatty drive through Tardeo and Peddar roads every day.

The researchers calculated traffic volume of the road network for 2015, 2025 and 2035, with a growth rate of 5% every year. Vehicular congestion peaked between 10am and noon, and between 7pm and 9pm. Peak-hour traffic, however, was from 6pm to 7pm on the Tardeo road.

The study also found higher traffic congestion during the evening peak hours when compared to the day, with the highest vehicular congestion from Haji Ali to Peddar Road. Of the 12 roads, seven were highly congested during the evenings, and all 12 roads reached their projected capacity in 2025, particularly during peak evening hours.

Barring a projected increase in NOx levels, CO and PM levels were below the permissible limits, but still higher than 2015. While the legal limit for CO is 200ug/m3 for 8 hours, the levels are likely to rise from 2015's 246ug/m3 to 401ug/m3 in 2025, and 653ug/m3 in 2035.

As for particulate matter, whose permissible limit is 60ug/m3, the levels were likely to be 6.1ug/m3 in 2025 and 10ug/m3 in 2035 as compared to 3.8ug/m3 in 2015.

"The reason for low PM levels is because it's not emitted from the vehicle's tail pipe. Whatever PM levels were found was a result of suspension of dust from the road," said Kumar.

The study, titled Prediction and Analysis of Pollution and Congestion Level for Present and Future scenario on an urban road network - India was published in the latest issue of the International Journal for Traffic and Transport Engineering.

A Second-Generation Indo American Donates Two Crores to IIT Kharagpur

http://www.indoamerican-news.com/a-second-generation-indo-american-donates-two-crores-to-iit-kharagpur/

Asoke Deysarkar (left), Ruma Acharya and Shion Deysarkar

Shion, a data scientist from Carnegie Mellon and the CEO of Datafiniti, grew up listening to his parents swap stories about their alma mater – IIT Kharagpur. He observed their sense of pride and passion for education as they walked him through the campus pointing out their classrooms, dorms and even Chedi's Chaiwala.

Three weeks ago, Shion, 35, told his parents Asoke Deysarkar and Ruma Acharya that he'd like to donate $300,000 or 2 crore rupees to IIT KGP. The money would be utilized to set up three Chair Professorships in Geology and Geophysics, Chemical Engineering and Chemistry/Mining Engineering.

According to IACCGH Executive Director Jagdip Ahluwalia, this first-of-its-kind gesture of generosity from a second generation Indo American, who hasn't even studied there, is laudable and inspirational.

What prompted this? Shion says the family is always looking to "fund projects that will have a catalytically effect" – in this case, the money will go towards bolstering faculty which in turn will

improve the program and attract more students. There's also the fact that "dollars can go further in India than the US."

However, this isn't the first time the Deysarkars have opened their checkbooks for their alma mater. Ruma donated $25,000 to improve the amenities at the Sarojini Naidu Girls hostel, Asoke funded a project in the Geology Department, a biodiesel research grant and in 2013, and the couple announced a donation of one million dollars to start a Center for Excellence in Petroleum Engineering at the prestigious Institute.

Asoke, 69, says the jump from a small mining town called Gua in Jharkhand to IIT Kharagpur – India's premier technical college, sparked a huge transformation in his outlook and made him believe "he could conquer the world." Ruma, on the other hand, was a "city girl, born and raised in Kolkata" and the only girl in her family to date to become an engineer. They were both students of IIT Kharagpur and although they never met there, Ruma says she knew of Asoke because he was "a topper." After their Masters in Chemical Engineering, the two scored full scholarships and headed to the University of Greater Manchester in England for their Doctorates. It is here they met for the first time and within days realized they wanted to be together for the long haul.

With a Chemical Engineering background, the Deysarkars needed a place where they could both find their niches. Houston seemed a good bet and they moved here in 1980. After successful stints at Dresser Industries and Pennzoil Products, Asoke gave into his entrepreneurial spirit and started Products for People (PfP) in 2003, a Houston-based Company that provides chemical solutions to the oilfield and gas industry worldwide. Today PfP is a Top 100 Company in Houston and Asoke chalks this success to "right timing, luck, tenacity and hard work."

Meanwhile Ruma was running her own show – Ground Technology, an Environmental Services and Geotech company for 20 years during which she bagged contracts with HISD, TxDot and Kroger Company. She recently sold her company and is currently overseeing a personal project on a 14 acre plot bought by her husband. The Tagore Center Foundation, as it is named, will include an open air theater, Center for Performing Arts and a Montessori school. She is also the force behind the installation of the Rabindranath Tagore statue in the Ray Miller Park.

IIT's, which offer world class education, seek private funding for three reasons: it allows them to be more independent, offer better programs and the government matches the private funding they receive.

Shion's parents are understandably proud and happy with their son's thoughtfulness and hope the day comes when institutes don't require any funding from the government. Asoke strongly believes this can be done if more alumni pitched in.

In the meantime, the Deysarkars and now, son Shion are certainly doing their bit to make this happen.

May 2

IIT-Madras Launches I-NCUBATE to Convert Research Ideas into Sustainable Businesses

https://www.indianweb2.com/2018/05/02/iit-madras-launches-i-ncubate-to-convert-research-ideas-into-sustainable-businesses/

The Gopalakrishnan-Deshpande Centre for Innovation and Entrepreneurship (GDC) at Indian Institute of Technology Madras (IIT-M) has launched its flagship offering, I-NCUBATE, which enables faculty, researchers and entrepreneurs to validate if their technological ideas can be converted into a sustainable business.

Under 'I-NCUBATE,' GDC is working to bring deep-tech ideas from the laboratories of academic institutions to the marketplace. The first cohort of seven teams that have gone through I-NCUBATE program with instructors from George Washington University completed their session on Monday, 30th April 2018.

I-NCUBATE is a 7-week engagement programme where teams, each comprising a Faculty Lead, an Entrepreneur Lead, and a Mentor, come together as a cohort under the GDC umbrella and go through a customer-discovery exercise with their respective business ideas.

The key goals of I-NCUBATE are — to help the faculty and the entrepreneur obtain an evidence-based validation of their idea by interacting with a sufficiently large number of potential customers; to enable the faculty and entrepreneur to formulate a Minimum Viable Product (MVP) that can be subsequently tested in the marketplace, and to assist the entrepreneur in formulating a business model for tapping the market opportunity.

GDC believes that these steps at a pre-incubation stage are essential pit-stops in the journey of transforming an idea into a scalable and sustainable business venture.

All teams that successfully complete the I-NCUBATE programme will be eligible for reimbursement of expenses incurred for participating in the programme up to a limit of INR 1,75,000.

Though the deadline for application for first cohort of I-NCUBATE has ended, GDC invites applications to participate in the I-NCUBATE programme by filling up the application form and sending the same to GDC at cinogdc@iitm.ac.in.

GDC has just completed the first cohort of the I-NCUBATE program with seven start-up teams from diverse areas in deep tech – MedTech, industrial safety, environment, and agri supply chain.

In year 2018, GDC plans to work with over 50 start-up ideas in from different scientific and engineering institutions from all over India.

GDC has been established at IIT Madras in August 2017 to provide the necessary thought leadership and networking impetus to help in building the systems and processes that enable innovative and entrepreneurial thinking across the Institute at all levels.

To recall, last month it was announced that IITs across the country are planning to help doctoral/Phd students convert their thesis in to a full-fledged 'Start-ups'. The move planned will be first executed by the IIT-Delhi to allow research scholars to become entrepreneurs.

Speaking about IIT-Madras, in 2016, India's largest private sector steel company, Tata Steel, has sponsored a research being done by some meticulous IIT Madras scientists into graphene, a new-generation carbon material.

In the same year, IIT-Madras joined hands with Nokia to work together for creating technological solutions that will increase the current broadband connectivity situation in the rural India. Nokia provided funds and technological expertise for research at the prestigious IIT-M's Center of Excellence for Wireless Technology (CEWiT).

PM2.5 in your lungs: Pollutants in Delhi air twice the permitted level, been so for two decades

https://www.financialexpress.com/environment/pm2-5-in-your-lungs-pollutants-in-delhi-air-twice-the-permitted-level-been-so-for-two-decades/1152717/

Recently, a study by WHO also pointed out that Delhi has the worst air quality among cities in India. This report also highlighted the increasing number of Indian cities, which are slowly reaching the levels of Delhi in terms of pollution. WHO collected data from more than 4300 cities and 108 countries.

Often in the news for its deteriorating air quality, India's capital Delhi is again in the limelight for similar reasons.

A study has found that the PM2.5 levels in Delhi have remained twice the safe standards over the past two decades. The new study, conducted by TERI and IIT Delhi, shows that the annual PM2.5 level in Delhi has been 97.4ug/m3 between 1998 and 2005, much higher than permissible limit of 40ug/m3 prescribed by the National Ambient Air Quality Standards.

The study titled, '18-year Ambient PM2.5 Exposure and Night Trends in India Cities', further states that the situation in NCR towns has been no better, with Noida (103.4ug/m3) and Ghaziabad (101ug/m3) being the most polluted.

"As PM 2.5 measurement in India, following international protocols in a systematic manner started in 2008-09, and there was a lack of data prior to 2012, we had to rely on satellite data. Satellite data on aerosol pollution can give us an idea of PM2.5 concentrations and exposures," Sagnik Dey, Associate Professor at IIT, who led the four-member research team, told Hindustan Times.

Recently, a study by WHO also pointed out that Delhi has the worst air quality among cities in India. This report also highlighted the increasing number of Indian cities, which are slowly reaching the levels of Delhi in terms of pollution. WHO collected data from more than 4300 cities and 108 countries.

WHO report also raised concerns about indoor pollution, especially in developing countries, the report highlighted that more than 40 percent of world's population does not have clean cooking technology or lightning and people use traditional ways like wood, dung, charcoal, open fire, resulting in 3.8 million deaths due to household pollution in 2016.

Meanwhile, the Union Environment Ministry on April 19 called a meeting for discussion on the implementation of newly framed National Clean Air Programme (NCAP) at an estimated cost of Rs 637 crore. The government plans to install monitoring stations in 100 cities in two years as part of this programme.

The pollution level in Delhi and NCR has been a serious issue and it has been due to the gravity of the problem that measures such as the odd-even scheme, checking of burning slashes by farmers of Haryana, Punjab, western Uttar Pradesh, closing construction activities for some time, water sprawling, etc. have been taken from time to time.
However, the results have failed to yield any substantial relief so far.

Playing the shots right
https://researchmatters.in/news/playing-shots-right
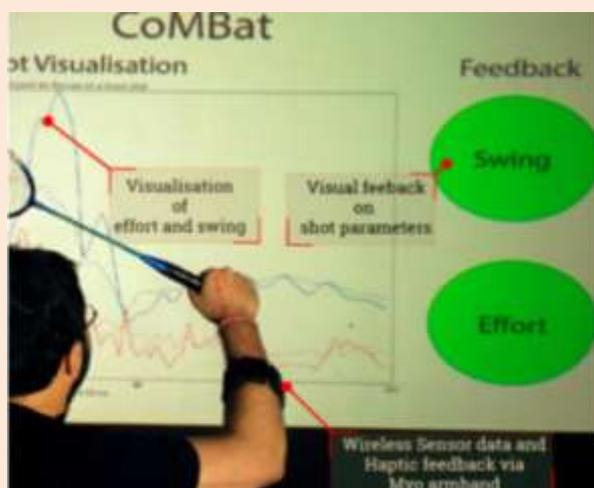
IIT Bombay researchers design a badminton training system using wearable technology.

Watching the world number one, K.Srikanth, play badminton is awe-inspiring! If you have ever wished to hold forth a rally like him, but had trouble practising the basic shots, then this study from the Interdisciplinary Program in Educational Technology at the Indian Institute of Technology Bombay could be good news for you. The researchers have designed a training system to help you master the shots in badminton using a Fitbit-like wearable device to record your arm movements and provide feedback.

In a fast-paced sport like badminton, one can play the right shot at the right time only if one knows it exceptionally well. To practise a shot to perfection, along with the stance one needs to learn when to apply the effort and how much to swing the arm. Perhaps, we can carefully watch experts play and imitate them to acquire these skills? That is not so easy! Effort and arm swing are abstract concepts which are difficult to explain and understand.

But what could help is a way to know the exact difference between one's current shot and the expected shot as played by the experts. Here's where the training system, called CoMBaT, developed at IIT Bombay, suits well. Along with your coach, the system can help you practise at your own pace and schedule, and teach you how to improve each shot.

CoMBaT uses a band worn on the forearm, called the Myo band, developed by Thalmic Labs. It contains sensors that record the linear and angular motion of the player's arm and the muscular activity involved for each shot. The device transmits the recorded data wirelessly to the training system over Bluetooth, which is then used to calculate the swing of the arm and the effort applied for playing the shot. The training system also plots graphs for these parameters in real time which could be projected to an external display. Each plot contains a reference pattern obtained from the shots played by an expert, thus letting the player compare their shot with that of an expert's.

Since it is not always convenient for a player to look into an external display while playing, the Myo band also contains vibration motors that provide real-time feedback by generating specific patterns of vibrations based on the quality of the shot. For example, if the player's score for both swing and effort, calculated using the data received, are below a particular threshold score, the shot is 'good'. The Myo band sends a short pulse of vibration, and visual markers for swing as well as effort are in green on the external display. However, if one of the scores is above the threshold, the shot is 'average', and three short pulses of vibrations are felt. The corresponding visual marker is shown in red. If both scores are above the threshold, the shot is 'bad', and the Myo band sends a long pulse of vibration with both the visual markers shown in red.

While designing, the researchers studied the system with three novice players and one expert where each player played 50 shots. "We observed that the feedback on a shot, received from the Myo band, improved the player's technique in the next shot", say the authors of the study. "The visual plots gave immediate feedback on whether a shot was correct or not", he adds, talking about the working of the system.

The study also gave some insights on the hidden aspects of training for novice players. For instance, the visual plots showed that muscular effort is applied before swinging the arm when playing a correct shot. While this aspect is evident to expert players, visualising it on a screen reassures the novice players about their technique.

The researchers plan to extend the functioning of the training system by better relating the plots to the actions performed. "The system could detect and guide corrections based on the common error patterns", say the authors, pointing out a few things they hope to improve. "Implementing virtual or stick figure animation for visualisation is also in the pipeline", they say.

This research is a part of the activities of Next Education Research Lab at IIT Bombay, where researchers explore the uses of emerging technologies in the design of learning activities. The study is a contribution to the area on using wearable devices to provide meaningful avenues for teaching and learning. "Similar systems can be used for any sport that deals with the movement of arms and muscular force, such as cricket and golf, or activities such as pottery and carpentry. Further studies could explore training systems for leg muscles or foot movements such as in football and athletics", sign off the authors, talking about the applications of such systems.

IIT-AIIMS Dhadkan to help monitor your heart

https://timesofindia.indiatimes.com/city/delhi/iit-aiims-dhadkan-to-help-monitor-your-heart/articleshow/63992428.cms

NEW DELHI: The students of IIT Roorkee have developed a mobile application —Dhadkan — for monitoring the vitals of people suffering from heart failure and provide them with medical assistance in case of an emergency.
The app, developed by computational biology group in consultation with experts from the All India Institute of Medical Sciences (AIIMS), can automatically send notification to both the doctor and the patient in case of any drastic changes in patient's health data, which could indicate the possibility of an imminent heart attack.

"Dhadkan will benefit India which has about 10 million patients at risk of heart failure. It is available for free and no charges are involved to avail the benefits," Deepak Sharma, assistant professor, department of biotechnology, who led the group, said.

Explaining how the app works, Sharma said it collects patient's data (at any desired interval), including blood pressure, heart rate, weight, and transmits it to the authorised care-giver (a doctor, nurse or paramedic) who is linked to the patient during initial registration.

"It also provides for a two-way communication between doctors and patients. In addition, patients can send ECG reports to the doctor (if needed). The app not only eliminates the need for manual monitoring of each patient, but also helps in recommending precautionary action during the treatment period," he said.

Dr Sandeep Seth, professor cardiology at AIIMS, said the first version of Dhadkan was developed two years ago to record patient's data and it helped significantly in medical management of heart failure patients at the institute.

Heart failure means that the heart isn't pumping as well as it should. It is a serious condition, and usually there's no cure. But many with heart failure lead a full, enjoyable life when the condition is managed with medication and healthy lifestyle changes, said American Heart Association.

Restyro, startup incubated at IIT-Hyderabad, opens office on campus

https://telanganatoday.com/restyro-startup-incubated-at-iit-hyderabad-opens-office-on-campus

Superintendent of Police appreciates the team for their effort in addressing the global problem of recycling polystyrRestyro team with Chandana Deepthi, Superintendent of Police, Medak, at IIT-Hyderabad

Sangareddy: Restyro Technologies Private Limited, a startup company that incubated at IIT-Hyderabad Technology Incubation Centre (ITIC), inaugurated its new office in 'C' block of IIT-Hyderabad.

Chandana Deepthi, Superintendent of Police, Medak, and Prof Aynampudi Subba Rao, president, Indian Innovators Association, graced the occasion as chief guests.

The Superintendent of Police showed great interest in knowing about the technology developed by Restyro Technologies and appreciated the efforts of the startup team for addressing the global problem of recycling polystyrene (a form of thermocol) and developing a novel, inexpensive and locally adoptable technology which contributes towards environmental sustainability and meets the objectives of government initiatives such as Swachh Bharat and Make in India.

Deepthi also suggested them to approach Telangana government to give the technology a wider outreach, which may also provide entrepreneurship opportunities for self-help groups (SHGs). The Medak SP stressed on wider publicity for the technology and the recycled polystyrene based fabric.

Prof A Subba Rao provided his valuable inputs to Team Restyro for further scaling up the operations and offered support.

Dr Chandra Shekhar Sharma, associate professor at Department of Chemical Engineering at IIT Hyderabad, who is one of the founding directors of Restyro Technologies briefed the guests about various accomplishments achieved by Restyro till date at national and international levels.

Dr Mudrika Khandelwal and team members of Restyro Technologies, research scholars and students were present.

Restyro Technologies Private Limited proposes a process which is not only facile but also cost-effective for recycling polystyrene waste into sub-micron aligned fibers, using environmentally safe, non-toxic and natural solvent extracted from citrus peel, thus inventing the green route of recycling.

The recycled polystyrene fabric using environmentally safe solvent has been demonstrated for applications like cleaning water or oil spill remediation and in textiles.

May 1

JEE Mains result 2018: Topper Bhogi Suraj Krishna wants to join IIT Bombay

https://www.livemint.com/Education/iLro7M3whXYZbAnnsC5HSK/JEE-Mains-result-2018-Topper-Bhogi-Suraj-Krishna-wants-to-j.html

The second rank in the JEE Main 2018 conducted by the CBSE was bagged by Hemant Kumar Chodipilli from Andhra Pradesh, while Rajasthan's Parth Laturia secured the third spot
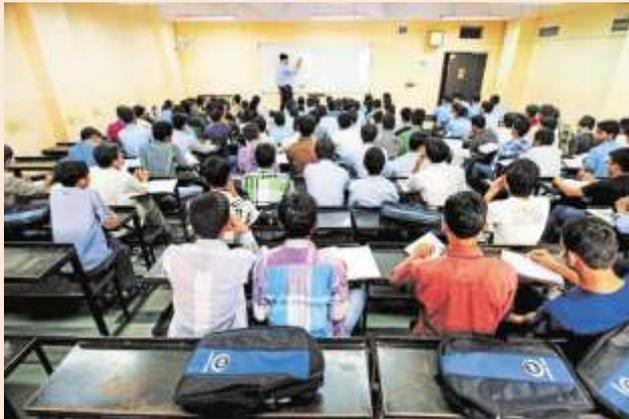
Over 11 lakh candidates had registered for the JEE Main 2018, a total of 10.74 lakh candidates had appeared for the test, of which 2,31,024 qualified the exam.

New Delhi: Vijaywada's Bhogi Suraj Krishna has topped the Joint Entrance Examination (JEE)-Mains for admissions to engineering colleges across the country, with over 2.3 lakh students, including more than 50,000 girls, qualifying the test whose results were declared on Monday by the Central Board of Secondary Education (CBSE).

The second rank in the exam conducted by the CBSE was bagged by Hemant Kumar Chodipilli from Andhra Pradesh, while Rajasthan's Parth Laturia secured the third spot.

"I was confident of my performance when the answer keys were out, but had not expected to bag the top rank," Krishna told *PTI* over phone from Vijaywada, adding that he wants to join IIT Bombay.

While over 11 lakh candidates had registered for the exam, a total of 10.74 lakh candidates had appeared for the test, of which 2,31,024 qualified the exam. Among those who have cleared the exam, 1,80, 331 are boys and 50,693 girls.

Besides seeking admission in various engineering colleges across India, the qualified candidates are also eligible to appear for JEE-Advanced which is an entrance test for IITs and Indian School of Mines (ISM), Dhanbad.

"The JEE question papers are prepared in original by over 100 item writers. These item writers are subject experts. They prepare over 1,500 items over a period of two months during the year of the exam. All these questions are prepared by the item writers in original and they are handwritten. After

that, 90 questions are drawn randomly and 8-9 sets are created. Anyone set is randomly picked for use in JEE," a senior board official explained.

The exam was conducted at 1,621 centres (1,613 in India and 8 abroad) across 112 cities (104 in India and 8 abroad). The registration process for JEE Advanced 2018 would start from 2 May and the examination is scheduled to be conducted on 20 May.

This year, the CBSE board is not giving any weight to class 12 board exam marks but will rank qualifying students on the basis of their JEE Main 2018 score.

However, candidates have to show the class 12th (regular/improvement) marksheet with 75% marks at the reporting centres at the time of counselling/admission in IITs/NITs/IIITs and other centrally funded technical institutions.

JEE (Advanced) cut-offs drop, toppers all eye IIT-Bombay

https://timesofindia.indiatimes.com/city/chennai/jee-advanced-cut-offs-drop-toppers-all-eye-iit-bombay/articleshow/63981893.cms

MUMBAI: The overall cut-off for all categories slipped considerably in the 2018 JEE (Main) exam. The common rank list cut-off dropped from 81 last year to 74. Around 10,000 more students qualified this year to take the JEE (Advanced), the passport to the IITs, lowering the cut-off. The all-India topper from Andhra Pradesh has set his eyes on IIT-Bombay. So has Bhaskar Gupta, the city topper with AIR 7. He wants to do computer science degree from IIT-B. "I am passionate about maths. I find the subject very easy as it has no theory, but only equations," said an ecstatic Gupta, whose father is an IITian and mother a doctor.

CITY, STATE TOPPERS STUDIED IN KOTA

Category-wise cut-offs for JEE (Advanced) 2018

Category	Candidates	Cut-off
Common rank list	1.1L	74 (81 in 2017)
OBC	65,313	45
SC	34,425	29
ST	17,256	24
People with disabilities	2,775	-35

Exam In Numbers ● Girls

Candidates who appeared	Candidates who qualified for JEE (Advanced)
10.7L	2.3L
● 3L (27.7%)	● 50,693 (22%)

JEE (Advanced) 2018 Schedule

Registration | May 2-7
Admit card available | May 14-20
Exam date | May 20
Online display of answer key | May 29
Declaration of results | June 10
Seat allotment (tentative) | June 19-July 15

Bhogi Suraj Krishna (AIR 1)

The son of a shop owner from Srikakulam, AP, he is approaching the JEE(A) exams with a mission to pursue computer science from IIT-B.

"I am thrilled. I did not follow any particular pattern to prepare for examination. On an average, I studied for about nine hours a day. It is my perseverance that has paid off as I never got up from my books till I finished a particular topic," the elated 17-year-old said, sharing how he even cut down on his cricket time — his favourite sport — to prepare for the exam.

Suraj who did his Intermediate from Sri Chaitanya Junior College in Vijayawada, always got good marks in school, said his father. He had got 9.7 GPA in his 10th class. His mother is a housewife.

Suraj used to spend two to three hours studying at home after his regular school hours. He moved to Vijayawada after his 9th to prepare for the exam.

Bhaskar Gupta with his maths and chess medals and trophies

" JEE (Main) was just a screening test for the next level. My focus will be on JEE (Advanced) preparation for the next three weeks — Bhaskar Gupta from Juhu

The math whiz avoided social media in the run-up to the test. "I am not on Facebook and use WhatsApp only for clearing doubts. Every day, I watch lectures and motivational videos on YouTube," said Gupta, who will turn 18 next month. He believes chemistry is a scoring subject, so students should study the NCERT textbook well. Yet he himself is passionate about mathematics as it has no theory. A chess enthusiast, right from the age of 6, Gupta wanted to learn chess to defeat his grandfather (maternal) — a doctor. He went on to bag national and international awards in the game at a young age. His father has had done his chemical engineering from IIT-Delhi, while his mother is a doctor. Gupta will be part of a team representing India in the physics Olympiad this year.

All-India Toppers

Rank	Name	Centre/State
1	Bhogi Suraj Krishna	Andhra Pradesh
2	KVR Hemant Kumar Chodipilli	Andhra Pradesh
3	Parth Laturia	Rajasthan centre. Originally from Nanded, Maharashtra
4	Pranav Goyal	Haryana
5	Gattu Mytraya	Telangana
6	Pawan Goyal	Rajasthan
7	Bhaskar Gupta	Rajasthan centre. Originally from Juhu
8	Dakarapu Bharath	Andhra Pradesh
9	Simarpreet Saluja	Delhi
10	Gosula Vinayaka Srivardhan	Telangana

Total Seats Available For Examinees

IITs	NITs	GFTIs	IIITs
11,500+	18,000	7,400	3,500+

Three Delhi students figured in the top 20. Delhi state topper, Simar Preet Saluja, bagged the 9th position with a score of 345. A student of DPS-R K Puram, Saluja was also a Delhi topper in the National Talent Search Examination conducted by the National Council of Educational Research and Technology in 2016, and the Kishore Vaigyanik Protsahan Yojana (KVPY) exam.

Andheri resident Avyakta Wrat from Pace Junior College, who stood 561, seemed to be among the high scorers among girls. IIT-Bombay campus resident Sai Kiran is among the state's SC high scorers with AIR 6. "I have no plans right now. All my time is going to go in preparing the Advanced," he said.

A total of 2.3 lakh candidates qualified for the Advanced exam, including 1.8 lakh boys and 50,000 girls — 22% of the total. Last year, around 2.2 lakh students had made the cut for the JEE (A). Interestingly, of this year's total candidates slated to take the Advanced exam, 1.1lakh (48%) are from the general category. A little more than 28% are OBC–NCL, 15% are SC and 7.5% are ST candidates.

IIT-Kharagpur rolls out course to connect ancient India to modern sciences

https://economictimes.indiatimes.com/industry/services/education/iit-kharagpur-rolls-out-course-to-connect-ancient-india-to-modern-sciences/articleshow/63977973.cms

Indian Institute of Technology (IIT) Kharagpur is looking to connect the dots between ancient India's science and technology and modern sciences by launching a course on History of Science and Technology in Ancient India.

The new course offered by the department of humanities and social sciences seeks to find out the contribution by Indian science and technology to the modern sciences, and show how modern sciences can be used to look at heritage.

"The study of history of science and technology of India from ancient times to colonial times is a critical component of IIT Kharagpur's Science & Heritage Initiative (SANDHI)," said IIT Kharagpur director Partha Pratim Chakrabarti.

"It is directed towards research, documentation, preservation and dissemination of the rich confluence of our civilisational heritage in science, technology, culture, language, architecture, design and its intricate connections with the rest of the world," said Chakrabarti, who conceived this course.

At most IITs, research projects are being pursued on ancient Indian science and technology but nothing has transformed into courses for students as yet, a professor at IIT Delhi said.

The course would give participants an overview of some of the chief landmarks in the development of science in India, especially in the fields of mathematics, physics, astronomy, chemistry and medicine.

It is intended to give students a perspective on the scientific and technological aspect of India's heritage. "The idea is not to romanticise Indian or oriental ideas, but to be conscious of the several other knowledge systems that the eurocentric knowledge system, which we have grown used to, ignores," said Jenia Mukherjee, who teaches the relation between science and humanism in this course.

Anuradha Choudry, one of the coordinators of the course, said, "We are also keen to help students understand the entire political, social, economic and philosophical/spiritual context in which these inventions took place and, most importantly, we are trying to help situate all this in the global scenario of that time."

The course is being offered for both the spring (January to June) and autumn (July to December) semesters as a regular three-credit elective course.

The syllabus covers classical Indian astronomy and its transmission, global influences; mathematics in Vedic and post-Vedic texts, the Kerala School of Mathematics, and traditions of computational techniques. Other components include medicine and health sciences and technology, including Ayurveda, Ayurgenomics—an offshoot of the study of Ayurveda with genetics—yoga psychology, contribution of some ancient Indian physicists, allied sciences and technology that looks into advances ancient Indians made in architecture, civil engineering, metallurgy, chemistry and the evolution of measurements.

The institute has identified faculty members of IIT Kharagpur from various departments, who are experts in their own domains. "These expert teachers help connect students of the modern sciences with ancient India, which many of these professors have studied in depth," said Choudry.

All India Council for Technical Education (AICTE), too, in its new curriculum rolled out for engineering colleges (other than IITs and NITs) has included non-engineering courses on subjects such as history of science and technology in India, and readings on Shankara, the early eighth century Indian philosopher and theologian who consolidated the doctrine of Advaita Vedanta.

April 30

Centre Launches Swachh Bharat Summer Internship
http://www.theindiasaga.com/nation/centre-launches-swachh-bharat-summer-internship

The Ministry of Drinking Water and Sanitation (MDWS) in association with Ministry of Human Resource Development (MHRD) and Ministry of Youth Affairs and Sports (MYAS) has launched the Swachh Bharat Summer Internship – a novel and first of its kind initiative.

The internship period begins from tomorrow, May 1, 2018 and ends on July 31, 2018. The programme aims to engage millions of youngsters across the country, toencourage them to contribute to the Swachh Bharat Mission as a mass movement.

The Prime Minister in his address, Mann Ki Baat, had called upon the youth to avail the benefits of the Internship and take forward the cleanliness movement.

Students can sign up for the Swachh Bharat Summer Internship by logging on to the portal www.sbsi.mygov.in which has already gone live. Besides students from college and Universities, youth from NYKS can also register for the internship. Nodal officers at college level will coordinate the implementation of the internship.

Under the internship, all interns who complete at least 100 hours of sanitation related work in villages would be given a Swachh Bharat certificate. Those who complete the internship with additional, specified outputs would also gain 2 curriculum credits specially allowed by UGC. Additionally, top

performers would receive awards at the College and University / District (NYKS), State and National Level.

The HRD Ministry has already issued relevant instructions to college and University levels. States have been asked to facilitate the students as they fan out to villages to take up various Swachhata activities including shramdan and awareness campaigns during the internship. The period for taking up the internship has been kept as a minimum of 100 hours any time from May 1. 2018 to July 31, 2018. The last date for registration is May 15.

Open-book exam likely for engineering

An All India Council for Technical Education (AICTE) instituted committee on examination reforms has recommended "open book examination" for engineering programmes. The report is being examined by the AICTE and the HRD ministry. If accepted, open book exams will allow students to take notes, textbooks and resource material into an exam hall.

The panel said the open book system was being proposed as the traditional pattern of examination often led to rote learning. These reforms are part of the systemic changes the apex regulator of technical education is undertaking, including curriculum changes it had undertook recently.

According to the report, the academic quality of examinations and question papers in Indian engineering education system had been a matter of concern for a long time.

The changes suggested by the committee include introduction of educational experiences to teach and assess professional outcomes including open-ended experiments in laboratories and project-based learning modules and internship experiences, among others.

"A wide range of assessment methods (term papers, open ended problem solving assignments, course/lab project rubrics, portfolios) need to be employed to ensure that assessment methods match with learning outcomes," the report said.

The committee was of the view that open book system was especially useful in testing skills in application, analysis and evaluation. "Open book examination is similar to time constrained written examination but designed in a way that allows students to refer to either class notes, textbooks or other approved material while answering questions so they are less demanding on memory and hence less stressful, questions can emphasise on problem solving, and higher order thinking," it said.

Apart from open book exam, the committee also recommended varying difficulty levels of question papers according to the capabilities of students, testing their different cognitive skills.

IIT-Guwahati designs geography textbook

https://timesofindia.indiatimes.com/city/guwahati/iit-guwahati-designs-geography-textbook/articleshow/63971187.cms

An IIT Guwahati team under the guidance of D Udaya Kumar, the designer of the Indian rupee sign, has come up with an innovative NCERT geography textbook with redefined images and illustrations to make classroom teaching exciting.

"Textbooks play an important role in a student's education system. The present schoolbooks need good design for better subject understanding and learning. This project is an attempt to redesign the current geography textbook, which lacks good visual content and ease of reading. We hope that this project will make a difference in the students' learning experience," said Udaya Kumar, who is a faculty member of the design department at IIT-G.

The redesigned NCERT textbook contains various new elements like 'Activity', 'Do You Know' and others to help maintain the reading flow.

Pranav Niphadkar, a graphic design student of the institute, undertook this master thesis project under the guidance of Udaya Kumar. The project had started with visits to several schools and interactions with students and teachers. "My inspiration for taking the project comes from the realization of the impact that a good textbook has in a student's life," said Pranav.

IIT's e-ledger mission

https://www.telegraphindia.com/india/iit-s-e-ledger-mission-227016?ref=india-new-stry

India's electronics security agency has asked scientists at the Indian Institute of Technology, Kanpur, to develop the country's first electronic public ledger to help make digital entries and transactions unalterable.

The National Cyber Coordination Centre, an agency under the Prime Minister's Office, has approved a proposal from two IIT Kanpur researchers to create the electronic public ledger that captures every digital entry or transaction made forever and stores records of alternations - also forever.

Computer scientists Manindra Agrawal and Sandeep Shukla hope to use a mix of mathematics and cryptography techniques to develop the new system that they say has potential applications across governance - from land records to income tax transactions to access to Aadhaar data.

"This will have many applications across government sectors," said Agrawal, professor of computer science at IIT Kanpur. While almost all government departments have already digitised their data entry, at present most of the stored digital records remain vulnerable to furtive tampering - whether by insiders or hackers from outside.

The National Cyber Coordination Centre has agreed to grant of Rs 33.4 crore over five years for the project, the scientists said.

Agrawal and his colleagues have proposed an electronic public ledger based on what computer scientists call the "blockchain algorithm" or a technique that ensures immutability of digital entries. The concept is not new - it is the technology underlying digital currency and many countries are adopting it.

The US National Institute of Standards Technology in January this year released a document highlighting the advantages of blockchain, which is essentially a decentralised ledger that keeps transaction records on multiple computers.

Once a group, or block, of such records is entered into the ledger, the information is mathematically connected to other blocks, creating a chain and any alterations would be time-stamped and recorded.

A report from the European Commission's Joint Research Centre earlier this year had highlighted how blockchain technology may help improve even the education sector - from introducing paperless degrees to tracking research citations and protecting intellectual property.

"We're trying to tailor blockchain to Indian requirements - for specific applications in India," Agrawal said. While land records is an obvious application sector, he said, blockchain could also help track Aadhaar access logs, essentially providing information about every log made to access Aadhaar data.

Once the technology has been developed, the scientists have proposed creating a start-up to be fully owned by IIT Kanpur in the institution's incubation centre on campus.

'IIT used to be male-dominated, not so much now with 23% women students'

http://indianexpress.com/article/education/iit-used-to-be-male-dominated-not-so-much-now-with-23-women-students-5156548/

Indian Institute of Technology, Bombay, Director Devang Khakhar tells Priyanka Sahoo about the efforts being taken to further up the institute's ranks and to make the campus women-friendly
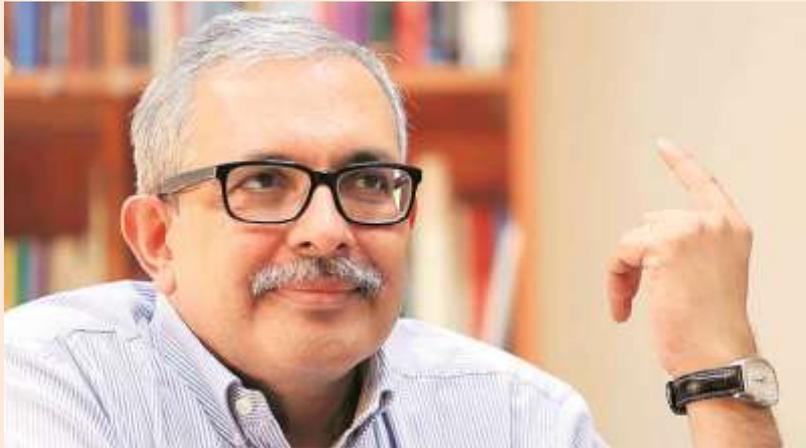
IIT Bombay Director Devang Khakhar. Amit Chakravarty

In the NIRF rankings released earlier this month, IIT-B appeared in the top five in at least three categories and it has been consistently performing well. What do you attribute this consistency to? We are a good institute, so we are doing well in the rankings. See, these rankings are new and so they still have to be fine-tuned and I feel we can do much better than this. Many people regard IIT-B as the number one institute. So in that sense I think we can do better perhaps looking at some of the parameters. We have a separate committee that looks into all the rankings.

The institute's Strategic Plan 2022 talks about diversifying from the core engineering subjects and plans to include Humanities and Arts. What is the reason behind this? Humanities and Social Sciences were part of IIT right from the beginning. So this is not something new. When IITs were set up, there was a strong emphasis on Science and Engineering so students could have a wide exposure to different subjects. So I think this is a natural evolution. It helps in two ways – one, it gives our students a much wider choice. It is difficult for students to decide exactly what they are going to do at age 18 when they come and join this place. So this gives them a chance to try out different disciplines. Two, our research becomes much more holistic because even Science and Engineering need to take inputs from Social Sciences and Design. Of course there is the Management component if you want to start some business. All of these things are very interconnected and we see a lot of collaborations across all the departments.

A few weeks ago, we saw scientists, academics and students, including those from IIT-B, participate in the 'March for Science' in Mumbai. One of the contentions was the decline in funds for Sciences. Has IIT-B faced any such issues? The only research funding we get is through the funding agencies. For us, each year those funds have been increasing. These are competitive grants. So if your proposal is really good then you get the grants but you are competing with everybody else. So since we have very good faculty here, they are easily able to attract funds. In a sense we haven't really faced reduction in funds here but I think if we have to be internationally competitive, then each year the increase has to be substantial so that the facilities can be quickly built and students can then get access to doing the kind of research that is internationally competitive.

Is it true that most of the research that is happening in India is catching up with what is happening abroad?
I would say, yes that is broadly true but all research is usually catching up whether it is done in the US

or in UK. What happens is that once in a while somebody makes a breakthrough and pushes the field forward. There are some of those things happening in India as well. There are some outstanding researchers all over the country. So they come up with some new ideas and new approach, then everybody follows along. But that is the nature of research in Science. But yes the number of breakthroughs that happen in the advanced countries is far more because there are far more researchers who have much better resources.

Last year there was a report that the number of research projects in IIT-B has gone up but the number of patents filed is not increasing correspondingly. We file a large number of patents, 100-120 a year. These things don't go in lockstep because the research funding after it is received, over the next few years that money will be used for the research. Then the patents are filed. On an average, our growth rate in research funding is quite high. It is also increasing in patents with time. Patents are more complicated than just doing research. People file patents only when they think there is a good possibility of commercialising or monetising those ideas in some way. So people may choose to do it or not, depending on how important they feel that idea is or whether the market is open for those things or if they are interested in the business side of things at all. We have to try hard and we are helping people to file patents but it is an expensive process. We usually support patents filed in India. If anyone wants to file a US patent, they have to find part of the funding themselves. After all filing a patent is almost like a business decision because you will spend a few lakhs filing a patent and maintaining it over 10-20 years but what will be your return on that. Quite a few of our patents have actually been commercialised either licensed to companies or some of them have been used by our startups.

In this year's 'March for Science', there was a lot of focus on the "decline in scientific temper" and increase in propagation of pseudo-scientific ideas. IIT-B was also in the centre of a controversy over a Vedic Sciences workshop last year. I think the subjects don't matter. I don't know about this Vedic workshop. I'm sure there is a lot of interesting stuff to investigate in those ideas which are there in our old books. I think every civilisation and culture tries to understand what is useful out of those things. The main thing is the approach. Do you take whatever is written in some book or some set of books as the final truth or are you studying those with a view to questioning what is written there, testing those ideas.

There was a student campaign started recently called #IITBWomenSpeak where women students talked about casual sexism on campus. We know that traditionally the sex ratio at IITs has been skewed. Is there any attempt at bridging that gap and addressing sexism on campus? Yeah. In a sense this place is a great place for women to study and work. We are absolutely committed to making women safe and comfortable here. There have been instances of sexism that have been pointed out. This was a male-dominated space but not so much now because 23 per cent of the students are women and that is not a negligible number. About 18 per cent of our faculty are women and if you look at our younger faculty there are more. We have a very active women's cell which has been conducting gender sensitisation workshops. IIT-B will add 35 supernumerary seats for women this year.

IIT-B is known for its incubation center for startups. What is IIT-B doing differently from other institutes? We have a whole startup ecosystem. The incubator is the end point. There is a very active student

club called E-Cell, which runs programmes for students. That generates a lot of enthusiasm. Students have a lot of role models in their seniors who have done well as entrepreneurs. Many come back and talk to young students so there is that transfer of information. Then we have set up the Desai Sethi Entrepreneurship Centre, supported by one of our alumni. It offers workshops and courses for students who are interested in entrepreneurship. Students can even take enough courses to get a minor degree in entrepreneurship. Some of these courses are taught by our faculty but a lot of them are taught by adjunct who are themselves entrepreneurs. Then finally we have SINE, which is the incubator which gives funding and all sorts of support. We have been very successful just nurturing companies to do well. People think about starting companies here because they know there is a way of doing it.

To cover the gap between Bio Science and Engineering, IIT-KGP to launch new courses
https://www.brainbuxa.com/education-news/to-cover-the-gap-between-bio-science-and-engineering-iit-kgp-to-launch-new-courses-8249

In the academic year soon to start, the School of Medical Science and Technology at IIT Kharagpur is all set to launch new academic programs in the fields of Biology and Engineering. The main aim of these programs to facilitate multidisciplinary and interdisciplinary approach in the field of biomedical research.

The new course will include a two year M.Tech course in Biomedical Engineering and all admissions in the course will be done through GATE (Graduate Aptitude Test in Engineering) exam.

"These programmes will bridge the gap between medicine, biological sciences and engineering with a roadmap to develop world-class scientists and clinicians," said Prof Suman Chakraborty, Head, School of Medical Science and Technology.

The course will include research area such as Bio-MEMS & Sensors, Cancer Research, Regenerative Medicine, Biomedical Instrumentation & Rehabilitative Medicine, Microfluidics & Point of Care Diagnostics, Cardiovascular Research, Biomaterials, Immunology and Immunotherapeutics, Biostatistics, Clinical and Epidemiological research, Biomarkers and Clinical Research Lab, Herbal Medicine, Medical Imaging & Image Analysis.

IIT-KGP is also in the process of launching a super specialty hospital which will become fully operational in 2019. The institute has also collaborated with numerous national and international bodies which will further strengthen the medical research and data analysis of the hospital.

"Innovations in technology have led to spectacular advancements in medicine. To meet the challenges posed by medicine in the 21st century, the country needs a new breed of medical professionals who can fuse together medicinal science with technology and can bridge the disciplines" added Chakraborty.

Cities punch holes in the blanket of fog
https://researchmatters.in/news/cities-punch-holes-blanket-fog

Satellite imagery of fog holes over India and Pakistan with extensive holes seen over Delhi and several cities throughout the Indo-Gangetic Plains, from NASA's MODIS sensor on 30 January 2014 at ~10:30 a.m. local time.

The persistence of fog over urban areas is suppressed due to increase in land surface temperature, reveals study.

The winters of North India are always in the news. Chilling cold fronts and thick fog in cities like Delhi disrupt trains, air traffic and day-to-day lives of many. An accurate prediction of fog goes a long way in planning transport and other activities in this region. A study by researchers at the Indian Institute of Technology Bombay has revealed another contributor that affects fog---the urban heating. Increased land surface temperature in cities is dispering the fog cover quicker than in the surrounding rural areas, leaving holes in fog as big as the size of Delhi when viewed from space.

Fog is a low lying cloud formed from condensation of moisture. The availability of significant moisture from agricultural land, water bodies, supported by calm winds in North India leads to dense fog formation. Though at times a nuisance, it plays a vital role in the ecology of the region and favours the growth of some fruit trees.

The researchers used NASA's Moderate Resolution Imaging Spectroradiometer (MODIS) satellite data of over a period of 17 years (2000-2016). They observed 'fog holes' occurring over urban areas of the Indo Gangetic plains, the most prominent one over Delhi. A fog hole is a variable sized open patch in an extensive fog cover.

The study, published in the journal Geophysical Research Letters reveals that the geographical extent of the 'fog hole' is highly correlated with the population of a city. Larger the city population, larger is the fog hole. "A strong correlation between the fog hole area and populations was observed from 13 global cities representing USA, Europe and Asia. Delhi's urban heat appears to have the strongest impact on the suppressed fog formation, when compared globally", says Ritesh Gautam, formerly professor at IIT Bombay, who led the study.

So, how does heat exactly affect the formation of fog? In rural areas, temperatures remain cooler along with sufficient moisture availability from higher green cover. Due to intense urbanisation, cities are generally warmer than rural areas, especially during winter months. There is also a relative lack of vegetation cover (for example trees, croplands, grass cover) within city premises, which lead to low

relative humidity inside cities compared to rural areas, that can lead to sharp differences in fog formation across urban- rural landscapes. "The fog hole phenomenon, especially over Delhi, is so strong that it causes nearly 50% reduction in fog frequency compared to Delhi's surroundings, seen over the 17-year period (2000-2016)", remarks Prof. Gautam.

The study notes that aerosols (suspended fine particles such as those coming from urban pollutants) in the air are known to increase or intensify fog development. However, the effect of urban heating seems to be more dominant than the effect of aerosols, and effectively causes fog holes, say the authors.

This finding can have considerable impact on fog prediction. "The findings from the study are in the direction of the better understanding of fog processes and highlights the specific impact of urban heating on fog. Developing a sophisticated prediction system which accounts for the impacts of both air pollution and urbanisation can improve fog forecasting capability", adds Prof. Gautam.

The findings render clear evidence of the impact of urban heating over cities in causing fog holes. As Prof. Gautam points out, "Fog is a regional issue and not just a local issue". The fact that fog is of ecological importance has a significant impact on life in the northern plains, calls for an in-depth study of fog formation processes and the impact of air pollution and urbanization on fog in not just the urban areas of Delhi, but also other parts of North India.

April 28

Water-Less Bathing & 'Intelligent' Limbs: IIT-D's Open House Throws Up Host of Innovations!

https://www.thebetterindia.com/139419/iit-delhi-open-house/

From a bio-degradable nasal filter to a solvent system that converts agro-waste into pulp, the recently-held IIT Delhi Open House showcased awesome tech innovations developed by students.

The Open House of the Indian Institute of Technology Delhi (IIT-D), which is held on its premises, is an annual one-day event dedicated to exhibiting path-breaking research work and student-led product development projects.

The 14th edition of the Open House kicked off on 21st April with an inaugural lecture to inspire hundreds of students who were present, and allow them to get a feel of the scientific temperament of this wonderful institution.

"The Open House serves a real treat to the eyes of the connoisseurs by presenting finest of the projects to technology enthusiasts, students and colleagues from other technical Institutes, school children, industries and the general public," stated the official IIT-D website.

The engineering institution also opened its laboratories to the public, students and industry on this occasion.

Apart from talks conducted on 5D technology and Artificial Intelligence, the public was also treated to an exhibition on innovative products and equipment. Around 50 innovative products, both software and hardware were on display.

Some of the outstanding innovations that garnered the maximum interest were as follows:

1) Flexmotiv

Devised by Srinivas Adepu and Arvind SA, Flexmotiv is a special crutch to ease walking for the disabled and has no medical side-effects.

An article published about Flexmotiv on the IIT-D website quoted Arvind speaking about the crutch. He said, "There are several serious side effects from using a traditional crutch like deformation of the body, nerve damage, and crutch palsy. We took all this into account and re-designed a crutch that reduces energy usage and mitigates the side effects."

2) OnBoard

The brainchild of M Balakrishnan, a Professor of Computer Science in IIT-D, this device enables visually challenged people to safely board public buses without any external help.

Professor M Balakrishnan at the IIT-D Open House Seminar.

It is basically a handheld radio frequency-based system that announces bus route numbers and guides users to the bus door. The user may press one button to hear the route number, and another to select it. The 'select' button will activate a speaker fitted near the bus door to help the user board by following a voice. It can be adapted to be used in trams, trains and metros.

**3) A Solvent System that transforms agro waste into pulp**

Kriya Labs, an IIT-D start-up founded by Ankur Kumar, who is an alumnus of the institute, has developed a non-volatile and biodegradable solvent system that converts crop residues (such as rice straw) into value-added products.

This will help farmers earn additional profits from farm waste (that is typically set on fire in the farms of Punjab and Haryana) and will also improve the air quality of the region.

4) "Intelligent" Prosthetic Limb

This invention by IIT-D student Ashutosh Tiwari allows knee joint movement similar to real legs—something which conventional prosthetics are unable to do. Low-cost and durable, these prosthetics use shoes equipped with smart-sensing to adapt to an individual's movement.

5) Nasofilter
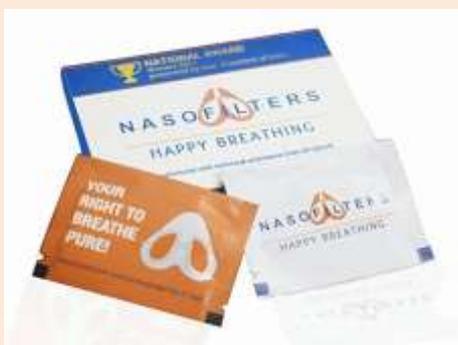
This is a use-and-throw biodegradable nasal filter meant to protect users from air pollution (including PM 10 and PM 2.5 particles) and prevent respiratory diseases. Priced at Rs 10, these filters stick to the

user's nasal orifice and restrict foreign particulate matter from entering the body. The start-up dealing in this product is Prateek Sharma's Nanoclean Global Pvt Ltd, which was incubated at IIT-D.

6.) Water-less Bathing

The founder of Clensta (a biotech start-up incubated by IIT Delhi) Puneet Gupta showcased a product for waterless bathing that can address the needs of patients, travellers, trekkers and personnel of the armed forces in water-scarce areas. The safe and stable product does not just take away dirt, dust and odour, it also maintains the Ph of the skin and keeps it moisturised.

IIT, Kanpur develops new technology to control pollution in Ganga

https://newstrack.com/uttar-pradesh/kanpur/iit-kanpur-develops-new-technology-to-control-pollution-in-ganga/

IIT, Kanpur develops new technology to control pollution in Ganga

Kanpur: In a breakthrough research at Indian Institute of Technology (IIT), Kanpur, the scientists have designed a monochrome sensor which could trace the source and extent of pollutants in river Ganga.

The sensor based technology in the four cameras installed at a small aircraft or drone is currently in the pilot stage but its efficacy has been proved to a large extent.

The project, partially funded by WWF-India and IMPRINT programme of Human Resource Development (HRD), was highlighted by British Filmmaker Jeremy Wade in his Television show 'Mighty Rivers'.

The research work has been undertaken by a PhD student Deerpo Sarkar under the guidance of Prof Rajiv Sinha of Earth Sciences Department of IIT-K and claimed to be a breakthrough research in tracing, tracking and control the river pollution by the Remote Sensing based Method used in an aircraft.

In the country like India where the river pollution has been nothing short of a menace, the latest technology could come handy to contain it, the scientists claimed.

IIT-M has become more global: Saint Gobain chief

https://www.newstodaynet.com/index.php/2018/04/27/iit-m-has-become-more-global-saint-gobain-chief/

Chennai: "In the last decade IIT Madras has become more global, agile, raised its standard and output in research, deepened industry connect, leveraged the alumni network and enhanced its reputation," said Saint Gobain India Pvt Ltd president and managing director B Santhanam.

Participating at the 59th Institute Day of IIT-M here on Thursday, he said, "The two decades of transformation have resulted in IIT-M being ranked as number one engineering institution in the last three consecutive years by NIRF."

Delivering the presidential address, IIT-M Director Bhaskar Ramamurthi said, "With this year's Institute Day, the 59th, we enter the 60th year of our institute's life. Sixty is young as universities go, but we have already carved out a name for ourselves nationally and globally. We have also made our mark as a key contributor in building our nation."

Commenting on various aspects that make IIT Madras unique, he said, "We are probably the first Institute to have set up a full-fledged Development Office three years ago to raise resources. Alumni hold several key positions in this office and working together with the IIT-M Foundation, the funds raised has been growing at a CAGR of more than 30 per cent."

Santhanam gave away the Institute R&D Awards, Award for Excellence in teaching and Non-Academic Staff Recognition Awards to the selected ones.

Bhaskar Ramamurthi presented the Distinguished Alumnus Awards and the Institute Research Award (Academic Awards) to 21 research scholars in appreciation of the quality and quantity of their research work. 'Extra Mural Lecture' (EML) Yearbook was also released by the dignitaries. The money collected through Saarang 2018, IIT Madras' cultural fest was donated to two different causes this year – Deepam Trust – Rs.50,000 and Chudar Foundation – Rs. 80,000, a press release said.

The Institute Day function was attended by students, staff and faculty members of IIT Madras as well as a large number of alumni both from India and abroad.

Students enrolling in humanities courses increased in past 3 years: UGC

https://www.thehindubusinessline.com/news/education/students-enrolling-in-humanities-courses-increased-in-past-3-years-ugc/article23709370.ece

The number of students enrolling in humanities disciplines has increased in the past three years, according to UGC data.

"The University Grants Commission (UGC) has stated that the total number of students enrolled in universities and colleges in the discipline of arts, humanities, social science including languages, oriental learning and area studies has increased in the last three years, a senior HRD ministry official said.

According to the data, 1.22 crore students enrolled in humanities courses across the country in 2014-15 academic session, and the number rose to 1.25 crore and 1.26 crore in 2015-16 and 2016-17 respectively. "There is a popular perception that those who take science courses are more studious and academically sound and there has been a stigma attached to humanities courses in the society. The perception has changed now. More and more students are opting for humanities courses and having successful careers," the official said.