

Newspaper Clips
April 21-27, 2018

April 27

National Digital Library centre inaugurated at IIT-G

<http://www.guwahatiplus.com/buzz/national-digital-library-centre-inaugurated-at-iit-g>



The first National Digital Library of India, North East Regional Centre (NDLI-NEERC) was inaugurated at IIT Guwahati during the sixth meet of all IIT librarians recently. As the first regional centre for the National Digital Library of India, IIT Guwahati will aid all the schools, colleges, academic institutions, professionals, specially-able students and all other learners in the region to integrate with and gain free access to quality education.

The National Digital Library of India (NDL India) is a National Mission Project in education developed by IIT Kharagpur under the aegis of the Ministry of Human Resource Development as a framework of virtual repository of learning resources with a single window search facility for learners of all ages and disciplines.

NDL India employs filtered and federated search to facilitate focused searching so that the learners can find out right resources with least effort and in minimum time. The platform, launched in 2016, is currently available as a free website as well as a mobile app.

Prof Mihir Kanti Chaudhuri, former VC of Tezpur University and currently Advisor, Education Department, Government of Assam attended the inaugural ceremony as the guest of honour. He explained the advantages and disadvantages a digital library could face – from the lack of electricity in remote corners of the country to an initial inertia in recognising what a digital library can provide.

“IIT Guwahati needs to popularise the National Digital Library of India so it can benefit all stakeholders,” he added.

Speaking on the occasion, Prof Partha Pratim Das, Joint Principal Investigator, NDLI said “The new centre will help in the integration of regional content from the north-eastern states within NDLI.”

Among other eminent speakers were distinguished academics from IIT Guwahati and eminent librarians from across the country including Dr B Sutradhar, librarian, IIT Kharagpur and Professor Gautam Biswas, Director of IIT Guwahati. Six schools were invited to participate and interact with members of Team NDLI, an event where they learnt the multi-modal, multi-lingual and multi-disciplinary learning opportunities that NDLI offers.

The library currently houses over 1.6 crore contents in over 200 languages from 148 premier institutes and boasts of over 30 lakh users.

IIT gets Rs 5 crore for science centre

<https://www.telegraphindia.com/states/odisha/iit-gets-rs-5-crore-for-science-centre-225980>

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IIT-Bhubaneswar director RV Raja Kumar receives a cheque from Odisha chief secretary Aditya Prasad Padhi in Bhubaneswar on Wednesday.

Bhubaneswar: The Indian Institute of Technology (IIT) here on Wednesday got a financial assistance of Rs 5 crore to set up a Centre of Excellence in Augmented Reality and Virtual Reality (VARCoE).

Odisha Skill Development Authority chairman Subroto Bagchi and his wife Susmita Bagchi lent a generous support of Rs 2.50 crore while the Software Technology Park of India (STPI) provided a matching grant for the project.

The centre of excellence will be set up in collaboration with the STPI to enhance research and entrepreneurship activities. A memorandum of understanding for this purpose was signed between the IIT-Bhubaneswar, the STPI and the state government in January.

Director of the STPI Manas Ranjan Panda on Wednesday handed over a cheque of Rs 2.5 crore to IIT director R.V. Raja Kumar in presence of Odisha chief secretary Aditya Prasad Padhi, while Bagchi and his wife gave away another cheque of Rs 2.50 crore at the same event.

While receiving the cheque, Raja Kumar said that establishment of VARCoE was one of the first few initiatives in the country in the area. "I express my sincere thanks to all the donors for being a party to an august beginning. We are committed to foster research and entrepreneurship in this important area," said the director.

He also said that the support would give an impetus to the ongoing research, and help in taking research activity to a new level by including immersive visualisation and technology incubation. "We will start work on the centre," he said.

Chief secretary Padhi expressed satisfaction on the management of the fund and urged the team members of the project to come out with innovation that can help the common man.

IIT Kanpur to build cyber security solution for govt digital initiatives

<https://www.thehindubusinessline.com/news/iit-kanpur-to-build-cyber-security-solution-for-govt-digital-initiatives/article23687296.ece>



Some potential areas of application of the cyber platform are land record and registry management, driving licence, and identity management - The Hindu

The platform is said to be one of the first attempts in the world

Even as the controversies over the leakage of Aadhaar data linger, the government has taken a major initiative to develop a robust home-grown blockchain-based digital platform which could be used for a variety of digital initiatives, including providing an access lock to fraudulent use of unique identity data.

The government recently awarded a ₹33.4-crore project to the Indian Institute of Technology Kanpur (IITK) to conceptualise and build the platform and the software that can be used by Central and State government departments for transparent e-Governance initiatives.

The project will be executed by a team led by Manindra Agrawal, a professor of computer science and engineering at IITK. As per the mandate given to the experts, the scientists would conceptualise and build the platform in two years and hand it over to a firm, wholly-owned by IITK.

Over the next three years, the firm will identify the possible areas of applications. Some potential areas of application thought of are land record and registry management, driving licence and record, identity management as well as insider threat management in the context of cyber security of any IT infrastructure. The IITK team will be helped in creating the blockchain platform by would be their counterparts in IIT Madras.

Wide-ranging applications

The platform will be designed in such a manner that it can be used to meet a wide range of digital technology initiatives of the government, ranging from providing an access lock on Aadhaar card information to managing digital land records, said Agrawal, who is also the deputy director of IITK.

Agrawal, who, along with his students Neeraj Katyal and Nitin Saxena, discovered a quicker way to test whether a number is a prime number (called AKS primality test) in 2002, is one of the leading experts in cryptology and, thus, by far the best in the country to take up the challenge.

“Our design has to be general enough to cater to the diverse requirements of the government. Therein lies the challenge,” said Agrawal. “For example, in the case of Aadhaar, only the person to whom the Aadhaar number belongs should be able to verify the Aadhaar access details, nobody else. On the other hand, everybody should be able to access land records to verify who holds what land.”

Blockchain advantage

Blockchain technology provides an immutable recording mechanism for events, transactions, and data – which due to use of strong cryptographic hash functions, and hash-based chaining of blocks of data -- cannot be tampered with even by users with administrative privilege.

“Blockchain platform can be viewed as a public ledger, which cannot be tampered with. When one makes an entry into the ledger, nobody can change or remove that entry, not even the person who has made that entry. So once a record goes in there, it becomes tamper-proof forever. That is its strength,” said Agrawal.

Other collaborators of Agrawal in the project are Sandeep Saxena, IITK professor who will handle the software design, and Shweta Agrawal, a cyber security expert from IIT Madras and their research students.

Coal India ropes in IIT to plan manpower profile

<https://steeltguru.com/coal/coal-india-ropes-in-iit-to-plan-manpower-profile/508072>

ET reported that Coal India Ltd has engaged the Indian Institute of Technology to prepare a comprehensive manpower profile plan for itself. The world’s largest coal company employs 2.8 lakh persons including executives. A senior Coal India executive said that “With the advancement of technology, the profile of manpower required to run the company has changed over time. While advanced machinery is being employed in mines, we are using advanced technology at Coal India

headquarters to run daily businesses. This requires a fresh set of manpower profiling that IIT will prepare for us and submit in about six months.”

The executive said 12,000 employees retire every year from the company set up over 40 years ago, while it barely recruited 1,100 last year. The company feels it needs to profile its manpower skills in the changed environment where new age equipment enables an employee to undertake jobs that earlier required more hands.

The executive said that “This realisation has prompted us to undertake the service of the top organisation last month that would tell us what kind of skill set should we look at for various positions.”

Coal India used to employ close to 6.8 lakh employees in the mid-eighties and produced hardly 100 million tonnes of coal. The number of employees has reduced to less than half over the years and it now produces nearly six times more. This has increased per person productivity by several notches.

The Coal India executive said that “Lesser number of employees can produce more with advanced machinery and equipment. This is exactly why we need a fresh profiling.”

UNNAT BHARAT ABHIYAN

750 higher education institutions to introduce rural internships

<https://www.theweek.in/news/india/2018/04/26/under-mhrd-programme-750-higher-education-institutions-implement-rural-internship.html>

Rural internships, will now be applicable for students across all streams. While the government has not made it mandatory, students from 750 higher education institutions will go to rural areas to understand the problems of rural population, under Phase 2 of Unnat Bharat Abhiyan. The programme that was launched on Wednesday will eventually be extended to all higher education institutions.

“To cover the 45000 villages of the country under this movement, we need the participation of 8252 institutions of higher education. Higher education institutions are largely funded by government and people’s money and their participation in this campaign will be a payback time”, said secretary, higher education, R. Subrahmanyam.

Unnat Bharat Abhiyan is a flagship programme of the Ministry of Human Resources Development, with the intention to enrich rural India. The knowledge base and resources of the premier institutions of the country are to be leveraged to bring in transformational change in rural developmental process.

Under the Unnat Bharat Abhiyan 2.0, the institutions have been selected on a Challenge Mode and the scheme has been extended to 750 reputed higher educational institutes – both public and private – of the country. Also, scope for providing Subject Expert Groups and Regional Coordinating Institutes to handhold and guide the participating institutions has been strengthened. IIT Delhi has been designated to function as the National Coordinating Institute for this programme.

Each selected institute would adopt a cluster of villages/panchayats and gradually expand the outreach over a period of time.

Institutes through their faculty and students, will carry out studies of living conditions in the adopted villages, assess the local problems and needs, workout the possibilities of leveraging the technological interventions and the need to improve the processes in implementation of various government schemes, and prepare workable action plans for the selected villages.

The institutes would be expected to closely coordinate with the district administration, elected representatives of panchayat/villages and other stakeholders and will become very much a part of the process of development planning and implementation.

In this process, faculty and students of such institutes would be re-oriented and connected to the rural realities so that their learning and research work also becomes more relevant to the society.

Dr Satya Pal Singh, Minister of State for Human Resource Development appealed to the professors and students of the higher education institutions to motivate the rural public, particularly, the young generations for socio-economic development of the villages through various schemes and initiatives of rural development.

Railways brings TCS on board to work on safety operations

<http://www.thehindu.com/news/cities/chennai/railways-brings-tcs-on-board-to-work-on-safety-operations/article23675634.ece>



With huge investments expected in the next five years, safety and reliability are paramount.

Explores use of technology to monitor bridges, tracks

With a focus on safe and efficient operation of train services, the Railways is partnering with Tata Consultancy Services (TCS) under the Technology Mission for Indian Railways (TMIR) programme.

At a high-level meeting convened recently at the Research & Innovation Facility of TCS at the Indian Institute of Technology (IIT), Madras, top officials of the Mission Implementation and Coordination Committee of the TMIR explored the possibility of deploying advanced technology to monitor the stability of bridges and railway tracks.

Launching of drones for safe passage of trains, particularly at unmanned level crossings and fog-affected routes, was also mooted.

According to railway sources, N.S. Vyas, Chairman, IIT-Kanpur, identified asset management, health diagnostics and corrosion-resistant coating for rolling stock/tracks as priority areas where TCS could contribute.

With huge investments expected in the railways in the next five years, safety and reliability were paramount with increasing axle load and frequency of trains.

Prof. Vyas called for advanced communication technology in the train, off the train, train-to-platform etc.

A different way of thinking about technology was required and TCS could partner with the Railways for such innovations, he added.

It may be noted that multiple research centres were established at IITs/Universities to facilitate TMIR bring in new ideas to the Research Designs and Standards Organisation of the Indian Railways that approves new technologies for implementation, the sources said.

Rail cloud data

The meeting assumes significance in the backdrop of train accidents due to rail fractures in the recent past. The meeting underscored the need for rail cloud data and analytics for actionable intelligence across multiple applications.

Steel for high speed tracks using TATA Steel Corus Technology, corrosion resistance coating using nano technology, condition monitoring of rolling stock and introduction of technologies for modernising manufacturing/maintenance facilities were among the initial pilot projects finalised, the sources added.

April 26

INSPIRE, Government's Pet Project to Provide Faculty Jobs, Leaves Scientists Jobless

<https://www.news18.com/news/india/governments-pet-project-to-provide-faculty-jobs-inspire-leaves-scientists-jobless-1730177.html>

As per INSPIRE Faculty, the program has not been able to achieve what it set out to in the beginning. Now, the DST is exploring other options to create alternate avenues to continue research activities and avoid loss of talent in research and development.

New Delhi: The Department of Science and Technology (DST) had ambitiously implemented the INSPIRE Faculty (IF) program in 2011 to stop the 'brain drain' trend from India. Seven years later, the reality seems to be the rank opposite.

INSPIRE Faculty of DST intended to have awardees of the program recruited to host institutions, where the department's programs are being implemented. But as the first batch that was enrolled in 2011 entered the sixth year, DST observed that there was uncertainty lying ahead for its fellows. The

department then wrote to host institutes — NITs, IITs, IISERs, NISER — to absorb the INSPIRE Faculty in case of vacancies.

As per IF, the program has not been able to achieve what it set out to in the beginning. Now, the DST is exploring other options to create alternate avenues to continue research activities and avoid loss of talent in research and development.

Dr A Mukhopadhyay, Head of INSPIRE Section DST, last year wrote to the host institutions saying that, so far, around 1100 INSPIRE faculty fellows selected through national competitive processes have been hosted at various universities – State, Central and national research Laboratories/ centrally funded institutes like IITs, NITs, IISERs, NISER.

“The success rate of selection process is only about 10-12% out of which nearly 30% candidates are from overseas, who have either completed their PhD or postdoctoral research abroad before taking up the INSPIRE faculty offered in India within 32 years of age,” wrote Mukhopadhyay.

This selection process is carried out by the Indian National Science Academy, New Delhi on behalf of the Department of Science and Technology. DST provides this offer for five years from the date of joining purely on contractual basis towards supporting the fellowship and research grant for this period.

A RTI filed in November 2017 revealed, “currently, 65% IFs are unemployed permanently and suffering for their duly dignified career”. Rest 35%, who are employed, are at other than host institutions or were already permanent faculty when they applied for IF position (the scheme is open to permanent faculty as well).

Mukhopadhyay wrote to the host institutes that “they have serious concerns regarding the remaining INSPIRE faculty as they are yet to secure regular positions for continuation of their research activities”.

INSPIRE Faculty Seeks PM Appointment

Troubled at the numbers and selection rate, the fellows approached DST secretary Ashutosh Sharma several times in past one month. The affected fellows have sent letters to Prime Minister Narendra Modi, Minister of Science and Technology Harsh Vardhan and Human Resource Development Minister Prakash Javadekar complaining that “DST and host institutions both irresponsibly disavowed from their commitment of assured opportunity in research careers and left us on road”.

According to the Undertaking/Guideline for INSPIRE Faculty, “IFs are potential assets for Faculty development in host institutions and hosts will absorb IFs in due course. Host Institutions are expected to consider INSPIRE Faculty for permanent positions.” But, it has been observed that “neither hosts treated IFs like Faculty nor did they absorb most of the IFs,” said the complaint.

“Host institutes treat an INSPIRE faculty as a complementary highly paid postdoc instead of potential faculty candidate to the institute.”

DST declared IFs as potential assets for research and teaching and spent nearly Rs 90 lakh on each

faculty during 5 years. In absence of clear regulation/guidelines given by DST to host institution to ensure recruitment of INSPIRE Faculty as a regular faculty, the department has INSPIRE Faculty on mercy of host institution.

Plea to HRD

DST has conveyed to the INSPIRE Faculty, “We have no control over the host institutes.”

In this scenario, the intervention of Ministry of Human Resource Development in Department of Science and Technology is important. The Ministry has been dealing with the problem of faculty crunch and has taken steps to start programs that can fill the gap in faculty strength.

“Due to high faculty crunch in higher education, MHRD can direct the host institutions and DST to recruit IFs, who have already proved their suitability working for 5 years in the same institute. Also, we have been recruited through proper 3-tier selection process by eminent apex level selection committee of Indian National Sciences Academy,” the fellows said to the concerned parties in the complaint.

“MHRD can direct to DST (if required, provide funds to DST) to extend our tenure following the pattern of UGC Faculty Recharge Program up to 65 years,” the fellows said.

“We, the pool of trained young scientists are forced to be jobless, at the same time the Government proclaims to bring back the retired teachers to fill a large number of vacancies in centrally-funded institutions and universities,” wrote the complainants.

News18 was told by the source in HRD ministry that “HRD will act on the complaint and take it up with IIT/NIT Councils on absorption of INSPIRE Faculty recruitment in host institutes.”

HRD Ministry launches second edition of Unnat Bharat Abhiyan

<https://www.jagranjosh.com/current-affairs/hrd-ministry-launches-second-edition-of-unnat-bharat-abhiyan-1524712136-1>



HRD Ministry launches second edition of Unnat Bharat Abhiyan

The Union Human Resource Development Ministry on April 25, 2018 launched the second edition of Unnat Bharat Abhiyan in New Delhi.

Under the program, students from 750 higher educational institutions from across the country will adopt nearby villages and visit them to get acquainted with the regular lifestyle of village people and the problems faced by them in their day to day life.

Speaking at the launch ceremony of the program, Minister of Human Resource Development Prakash Javadekar said that the students are the real agents of change who can develop, empower and brighten the future of the country.

Javadekar added that the unique initiative will provide an opportunity to the students to learn about the basic challenges faced by rural people and to bring out practical solutions for their betterment.

He advised the students to involve local village people at every stage of problem identification and solving issues relating to health, cleanliness, waste management, plantation, financial inclusion, women and child development.

Objective

The main objective of the program is to enable higher education institutions to work with the people of rural India in identifying development challenges and evolving appropriate solutions for accelerating sustainable development in rural areas.

About Unnat Bharat Abhiyan

- It is a flagship programme of the Ministry of Human Resources Development, with the intention to enrich Rural India.
- Under the program, the knowledge base and resources of the premier institutions of the country will be leveraged to bring in a transformational change in the rural developmental process.
- The project aims to create a vibrant relationship between the society and the higher educational institutes, with the latter providing the knowledge and technology support to improve the livelihoods in rural areas and to upgrade the capabilities of both the public and private organisations in the society.

On April 7, 2018, a suspected chemical attack took place in the Syrian town of Douma, which killed over 60 people including men, women and children and injured several others. While it is still not proven that it was indeed a chemical attack, the on-site medics stated that the cause of most deaths was due to exposure to chlorine and sarin gas. In response to the chemical attacks, the United States along with Britain and France launched combined air strikes against Syria on April 14.

Unnat Bharat Abhiyan 2.0

- The second edition of Unnat Bharat Abhiyan is the higher version of the program's previous edition.
- Under Unnat Bharat Abhiyan 2.0, the institutions have been selected on a Challenge Mode and the scheme has been extended to 750 reputed Higher Educational Institutes (both public and private) of the country.
- The scope for providing Subject Expert Groups and Regional Coordinating Institutes to handhold and guide the participating institutions has also been strengthened in this edition.
- IIT Delhi has been designated to function as the National Coordinating Institute for the programme and the Ministry intends to extend the coverage to all the reputed Higher Educational Institutes, in a phased manner.
- Each selected institute would adopt a cluster of villages/panchayats and gradually expand the outreach over a period of time.
- Institutes through their faculty and students, will carry out studies of living conditions in the adopted villages, assess the local problems and needs, work out the possibilities of leveraging the technological interventions and the need to improve the processes in the implementation of various government schemes, prepare workable action plans for the selected villages.
- Such knowledge inputs would make their way into the development programmes in rural areas.
- The Institutes would be expected to closely coordinate with the district administration, elected public representatives of panchayat/villages and other stakeholders and will become very much a part of the process of development planning and implementation.

Delhi to host Academic and Research Integrity Conclave 2018

<https://www.liveindia.tv/en/delhi-host-academic-research-integrity-conclave-2018/04/>

Focusing on the role of academic integrity in modern day education, Delhi will host the Academic and Research Integrity Conclave 2018 at the Hotel Le Meridien, on May 2.

Academic integrity is an academic ethical code of conduct which students and faculty are expected to follow in the pursuit of educational excellence.

AICTE Chairman Professor Anil D. Sahasrabudhe will be the chief guest and Dr Ishita Roy, Joint Secretary, Ministry of HRD, will also participate in the deliberations as guest of honour along with academic heads of leading Indian academic and research institutions, including IIT Kharagpur, IIT Delhi, IIM Kashipur, Indian Council for Medical Research and Indian Agricultural Research Institute.

The keynote speaker during the event will be Dr. David Rettinger, President, International Center for Academic Integrity, U.S.A.

Speaking about the conclave, Ashim Sachdeva, Regional Director – South Asia, Turnitin India Education Pvt. Ltd., said, “The objective of the conclave is to discuss solutions for academic integrity and excellence in higher education system and research. The larger goal is to sow seeds to build a culture of excellence in education through critical thinking and original writing. The conclave will also discuss the global ecosystem and how India could encourage original thinking and research amongst students with different pedagogical intervention.”

Leading academicians and researchers from top institutions of India will be discussing on the role of academic integrity as an enabler of excellence in academia and research in India through discussions on two main themes: ‘Leveraging integrity for excellence in Higher Education’ and ‘Building a culture of research excellence through critical thinking & original writing.’

Turnitin, which is organising the event is an edtech provider and leader in academic integrity solutions for over 20 years, indexing over 65 billion web pages and 170 million journal articles, globally. In India, more than 400 institutions subscribe to Turnitin’s cloud-based software services, including leading institutions like IISc, IITs and IIMs. Even research institutions like CSIR and ISRO employ its services to promote academic and research integrity.

April 25

Tibet can be in China but has right on own language, culture: Dalai Lama

<http://indianexpress.com/article/india/tibet-can-be-in-china-but-has-right-on-own-language-culture-dalai-lama-5150580/>

Tibetan spiritual leader Dalai Lama also said that India is a leading example of how all religions can live together in peace and lauded the country's religious harmony.



Dalai Lama said India is a leading example of how all religions can live together in peace and lauded the country's religious harmony

Tibetan spiritual leader the Dalai Lama on Tuesday said that Tibet can remain in China but it has the right to preserve its own language and culture. He also said that India is a leading example of how all religions can live together in peace and lauded the country's religious harmony.

"We will remain with the People's Republic of China but meantime we have the right to our own culture, our own language, and our tradition," the Dalai Lama said at IIT-Delhi while delivering a talk on 'Happiness and Stress-free Life'.

"I feel India can make a certain contribution to world peace, dealing with emotions. World peace can never come through war but (only) through peace of mind. In that respect, India's knowledge of dealing with emotions is the ultimate source."

Tuesday marked the conclusion of the Tibetan spiritual leader's four-day visit to Delhi, his first since an event to mark 60 years of his exile in India was cancelled. The Indian Express had earlier reported that the Central government had directed its senior functionaries to skip events organised by Tibetans.

Speaking at the Nehru Memorial Museum and Library on Sunday, the Dalai Lama had said that Tibet may remain part of China if its geographical, cultural and linguistic autonomy is guaranteed. "Tibet will benefit from (the) economy of China," he had said.

The Dalai Lama said India must take a leadership role in promoting holistic education in a way that nourishes human intellect and inner peace. "Modern education should include education about inner peace," and that it needs to incorporate non-violence and compassion, as well as a broad understanding of workings of the mind and emotions.

He lauded ancient Indian knowledge on emotions and how to tackle them. "Just as we have learned to maintain physical hygiene, we also need to cultivate a similar hygiene of emotions to ensure a healthy mind and healthy body," he said.

JEE Advanced 2018: Notification, Date, Syllabus, Exam pattern, Admit card, results

<https://timesofindia.indiatimes.com/home/education/news/jee-advanced-2018-notification-date-syllabus-exam-pattern-admit-card-results/articleshow/63900552.cms>



NEW DELHI: The Joint Entrance Examination (JEE) Advanced is a national level engineering entrance exam conducted by seven zonal Indian Institutes of Technology (IITs) under the guidance of Joint Admission Board (JAB) every year. The JEE Advanced examination is conducted for admissions to 23 Indian Institutes of Technology (IITs).

Type of academic programs offered at iits with their minimum duration*

Programme	Duration (years)
B.Tech.	04
B.S.	04
B.Arch.	05
Dual Degree B.Tech. M.Tech.	05
Dual Degree B.S.-M.S.	05
Integrated M.Tech.	05
Integrated M.Sc.	05

*Only those academic programs for which admission is based on JEE (Advanced) examination are shown here. These Institutes also have other academic programs, viz., B.Des., M.Tech., M.Sc., M.Des., Ph.D., etc. with different admission criteria.

SCHEDULE OF JEE (ADVANCED) 2018

The examination consists of two papers (Paper 1 and Paper 2) of three hour duration each. Both the papers are compulsory. The examination will be held as per the following schedule:

Exam	Date and Time
Date of Examination	Sunday, 20 May 2018
Paper 1	09:00 IST to 12:00 IST
Paper 2	14:00 IST to 17:00 IST
Online registration portal	www.jeeadv.ac.in
Online registration begins	Wednesday, May 2, 2018 10:00 IST
Online registration closes	Monday, May 7, 2018 17:00 IST
Last date for fee payment for registered candidates	Tuesday, May 8, 2018 upto 17.00 IST
Copy of candidate responses to be sent to the candidates	By Friday, May 25, 2018, 10:00 IST
Online display of answer keys at	Tuesday, May 29, 2018, 10:00 IST
https://www.jeeadv.ac.in/	
Receiving feedback from candidates on answer keys through candidate portal	Tuesday, May 29, 2018, 10:00 IST to Wednesday, May 30, 2018, 17:00 IST

IMPORTANT FACTS

Exam Name	Joint Entrance Exam (JEE) Advanced
Exam Type	National

Exam Category	Undergraduate (UG)
Conducting authority	IIT Kanpur
Number of candidates eligible to sit for JEE Advanced	2,24,000
JEE Advanced selection process	Admission through JoSAA counselling on the basis of JEE Advanced Ranks
Mode of exam	Completely Online

ELIGIBILITY CRITERIA FOR INDIAN NATIONALS (including PIO/OCI) FOR APPEARING IN JEE (ADVANCED) 2018

Criterion 1 – Performance in JEE (Main) 2018: Candidates should be among the top 2,24,000* (including all categories) in Paper-1 of JEE (Main) 2018.

The percentages of various categories of candidates to be shortlisted are: 27% for OBC-NCL, 15% for SC, 7.5% for ST and the remaining 50.5% is OPEN for all.

Within each of these four categories, 5% horizontal reservation is available for PwD candidates.

Category-wise distribution of top 2,24,000* candidates (Criterion 1)

Order	Category	Number of "Top" candidates	
1	OPEN	1,07,464	Total: 1,13,120
2	OPEN-PwD	5,656	
3	OBC-NCL	57,456	Total: 60,480
4	OBC-NCL-PwD	3,024	
5	SC	31,920	Total: 33,600
6	SC-PwD	1,680	
7	ST	15,960	Total: 16,800
8	ST-PwD	840	

Criterion 2 – Age limit: Candidates should have been born on or after October 1, 1993. Five years relaxation is given to SC, ST and PwD candidates, i.e., these candidates should have been born on or after October 1, 1988.

Criterion 3 – Number of attempts: A candidate can attempt JEE (Advanced) a maximum of two times in two consecutive years.

Criterion 4 – Appearance in Class XII (or equivalent) examination: A candidate should have appeared for the Class XII (or equivalent) examination for the first time in either 2017 or 2018.

Criterion 5 – Earlier admission at IITs: A candidate should NOT have been admitted in an IIT irrespective of whether or not he/she continued in the program OR accepted an IIT seat by reporting at a reporting centre in the past. Candidates whose admission at IITs was cancelled after joining any IIT are also NOT eligible to appear in JEE (Advanced) 2018.

REGISTRATION FEE FOR JEE (ADVANCED) 2018

Registration Fee for
Examination Centres
in India

Indian Nationals Female (including PIO/OCI)	Candidates (all categories)	Rs 1300
	SC, ST, PwD Candidates	Rs 1300
	All Other Candidates	Rs 2600
Foreign Nationals	Candidates from SAARC countries	\$160
Foreign Nationals	Candidates from Non-SAARC countries	\$300

Registration Fee for
Examination Centres
in Foreign countries

Indian Nationals (including PIO/OCI)	All Indian Nationals	\$160
Foreign Nationals	Candidates from SAARC countries	\$160
Foreign Nationals	Candidates from Non-SAARC countries	\$300

JEE ADVANCED EXAM PATTERN

Mode of Exam: Online

Exam Format: Objective

Number of Sections: Three

JEE Advanced Exam Section	Number of Topics	Number of Questions	Section Score
Physics	20	39	168
Chemistry	22	40	168
Maths	20	40	168

JEE ADVANCED ADMIT CARD

Candidates who successfully registered for JEE (Advanced) 2018 can download the admit card from the online registration portal: www.jeeadv.ac.in

Portal for downloading admit card www.jeeadv.ac.in

Monday, May 14, 2018, 10:00 IST

Admit card downloading schedule to

Sunday, May 20, 2018, 09:00 IST

The admit card will bear the following details of the candidate: Name, Roll number for JEE (Advanced)

2018, photograph, signature, date of birth, address for correspondence and category. In addition, the admit card will have the name and address of the examination centre allotted to the candidate.

JEE Main exam key released, students free to challenge answers

<https://www.hindustantimes.com/education/jee-mains-answer-key-2018-on-april-24-here-s-how-to-check/story-4H574SOrrBXlis6fb8wXKP.html>

The JEE-Main exam (pen and paper format) was conducted on April 8, while the computer-based exam was conducted on April 15 and 16.



Students can write to the CBSE to challenge the answer key.

Central Board of Secondary Education (CBSE) on Tuesday released the answer key for the Joint Entrance Examination (JEE) Main paper, held this month.

Students can go through the key and also challenge the answers given in it, by sending a request directly to CBSE. They would have to do so by April 27.

A student who had appeared for JEE-Main exam on April 8 has spotted one error in answer key but is not yet sure if she would be challenging the contention.

“Question number 87 of Set B, from the Chemistry, only has option 2 listed as the answer. However, both 2 and 4 are correct options and it could be either of them,” she said.

Another student also spotted a discrepancy in the same question and plans to challenge the same. Students will have to pay Rs1,000 for each question they want to challenge.

JEE-Main exam (pen and paper format) was conducted on April 8, while computer-based exam was conducted on April 15 and 16.

Many candidates found the paper more difficult compared to last year. Experts too pointed that certain sections of the paper was difficult and lengthy, anticipating a drop in average marks this year.

Based on the answer key, the examinees have also managed to calculate their final score for the exams. The final results for JEE-Main are expected by the end of this month.

HRD ministry can select IIT faculty

<https://www.deccanchronicle.com/nation/current-affairs/250418/hrd-ministry-can-select-iit-faculty.html>

HC: Selection subject to writ appeal.

Chennai: The Madras high court on Tuesday said the HRD ministry can go ahead with the process of selection of faculty to IITs, but made it clear that it would be subject to the result of a writ appeal filed before it in the above connection.

The appeal challenged a single judge's order upholding the appointment of Bhaskar Ramamurthi as the director of Indian Institutes of Technology, Madras. In its interim order, a division bench, comprising Justices Huluvadi G Ramesh and M Dhandapani, said the secretary, higher education, HRD Ministry can go ahead with the process of selection of faculty to IITs following the roster and reservation policy. "The same is subject to the result of the writ appeal. If there is any violation in the process of selection without adhering to the principles of reservation violating Article 14 and 16 of the Constitution, it would attract serious penal consequences," the bench said.

The matter relates to the appointment of Dr Bhaskar Ramamurthi as the director of IIT Madras. Dr E. Muralidharan challenged the appointment but Justice M Sathyanarayanan upheld it in June last year following which he filed the present appeal.

He alleged that the appointment was in violation of rules and the Constitution of India and sought setting aside of the single judge's order. Muralidharan also filed a miscellaneous plea seeking grant of stay on faculty interviews "hurriedly" conducted and appointments made by Ramamurthi "without proper roster based advertisements and in violation of reservation policies of the SC, ST & OBC ..." He sought a direction to the CBI to investigate the faulty "recruitment scam." Besides this, Muralidharan sought a direction to the HRD Ministry to follow the SC, ST and OBC reservation policies in all appointments to IITs. The bench posted the matter for further hearing to June 6.

Shockwaves could replace needles and syringes used for drug delivery

<https://researchmatters.in/news/shockwaves-could-replace-needles-and-syringes-used-drug-delivery>



Scientists from Indian Institute of Science (IISc), Bengaluru, have developed a novel detonation-driven shock tube device for needle-free, painless drug delivery method. If commercialized the technology could replace the dreaded injections used in drug delivery.

Injections or puncturing the skin with a needle has been the preferred method of delivering vaccines. This method, however, has come under scrutiny in recent times, due to the risks they could

pose, like needle contamination, requirement for safe disposal of used needles, waste accumulation, accidental needle-stick, pain during usage, and needle phobia. Researchers around the globe have been looking for an ideal, needle-free and localized drug-delivery mechanism that could replace the needle and syringe.

The study from IISc demonstrates a novel device that uses shock waves to accelerate liquid jets, like vaccines, allowing them to penetrate the skin. Shockwaves are waves or disturbances moving faster than the speed of sound, usually generated as a result of an explosion. Although, usually studied as part of aerodynamics and aerospace research, shock waves have now been used for a host of interdisciplinary applications, including biomedical application.

The newly designed device consists of a shock tube containing oxyhydrogen (a mixture of hydrogen and oxygen gases in the ratio 2:1). The oxyhydrogen mixture is detonated using a spark plug to produce the shock wave, which travels the length of the shock tube, accelerating the liquid vaccine placed at the end of the shock tube. A paper diaphragm was used to separate the oxyhydrogen from the vaccine. The device was found to produce strong shockwaves, accelerating the liquid jets to velocities up to 96 meters per second-- powerful enough to penetrate the skin to depths of around 100 micro meters.

In their study, the researchers successfully administered BCG and Salmonella vaccine strains to mice, using the shockwave-assisted vaccine delivery device.

“The ability of the proposed device to produce shockwaves of required strength in a safe, clean and reproducible manner opens up new opportunities for shockwave-assisted biomedical research” remark the researchers about their new invention.

Scripting a roadmap to produce biohydrogen

<https://researchmatters.in/news/scripting-roadmap-produce-biohydrogen>



In the past century, fossil fuels like petrol and diesel have powered our vehicles, machines and in fact, our world! But the era of these fuels is coming to an end; all our petroleum reserves are soon ending, and the increasing pollution due to these fuels is making the world sick. Now, our hope lies in biofuels—fuels produced by organic wastes that are renewable and eco-friendly, unlike fossil fuels. In a step that can make biofuels a reality, researchers at the India Institute of Technology Kharagpur are scripting a new roadmap for India's biofuel demands by exploring efficient ways to produce biohydrogen.

"Biofuels can be harnessed easily. It can also be used in existing combustion engines after blending with petroleum diesel to various degrees. No separate transportation infrastructures would be required for such fuels", says Prof. Debabrata Das, in his article in the journal INAE Letters. He also leads the Bioprocess Engineering Laboratory at IIT Kharagpur where researchers are developing expertise in the field of biohydrogen production.

Biohydrogen is the hydrogen produced from organic wastes. As a fuel, hydrogen has the highest energy density, yielding 143 kJ per gram. Compare that with diesel that yields about 48kJ per gram! It is also a clean fuel, emitting no poisonous gases when burnt, and is eco-friendly too. While natural hydrogen is abundant, it is easy to use the hydrogen produced by fermentation of organic wastes as fuel.

In their research, spanning over many years, the researchers have investigated different kinds of chemical processes, bacteria and the organic medium needed to produce the most amount of hydrogen. "The main objective of the research work is to improve the biohydrogen production process with the primary emphasis being to increase yields of hydrogen from the existing processes using organic wastes", they say.

The centre-piece in the production of biohydrogen are the microorganisms that break up the carbohydrates in the organic wastes and produce hydrogen as a byproduct. In this study, the researchers investigated a wide range of potential hydrogen producing microorganisms, including those that tolerate a very high temperature (thermophiles) and those that grow best in moderate temperatures (mesophiles). They found that *Klebsiella pneumoniae*, a lactose producing bacteria, produces hydrogen at a higher rate than other mesophilic organisms. It works best at an optimum temperature of 36 ° C and a pH of 6.5.

The researchers also studied various organic media which these microorganisms ferment to produce hydrogen. Algal biomass (organic waste rich in algae), deoiled cakes of groundnut, coconut and mustard, starchy wastewater, plant dry matter, cane molasses and cheese whey were some of the medium studied. Using mathematical models, they designed bioreactors, where the fermentation takes place. They studied the composition of the biomass and the breakdown products and measured the amount of hydrogen obtained from each medium.

The researchers have also investigated the potential of acidogenic bacteria—bacteria that produce fatty acids and acetic acid as byproducts—in the fermentation process without oxygen. They have also employed an innovative approach of 'dark' fermentation—fermentation in the absence of light—followed by the removal of carbon dioxide to harness only the hydrogen. This method yields the maximum production of hydrogen.

Funded by the Ministry of New and Renewable Energy (MNRE—India), Defence Research and Development Organisation (DRDO—India), and the Department of Biotechnology the researchers have developed customised bioreactors to produce hydrogen continuously for use in fuel cells and other applications. They have built a prototype with a 20-litre bioreactor that uses agricultural residues, and the live demonstration of the same can be seen here.

The researchers are now vying for large-scale hydrogen production for commercial applications. "Our endeavour with large-scale biohydrogen production has motivated us to commercialise

biohydrogen production process for decentralised energy solution” , they say. So far, the bioreactor at the institute has been able to produce 76.2m³ of hydrogen using 10,000 litres of cane molasses supplemented with groundnut de-oiled cake at 34-37 ° C.

With natural sources of energy like the fossil fuels unable to quench the world’s energy demands, biohydrogen holds hopes of clean, green and cheap energy for the future. “Hydrogen production using organic wastes/residues could become a promising way for economical and sustainable clean energy generation which also leads to waste management”, the researchers say.

April 24

Enzyme from Yak cheese can boost nutritional value of cereals

<http://www.downtoearth.org.in/news/enzyme-from-yak-cheese-can-boost-nutritional-value-of-cereals-60295>

The newly identified enzyme helps to increase bioavailability of iron, zinc, magnesium and calcium



Researchers at the Indian Institute of Technology, Roorkee, have identified a new enzyme from yak cheese which promises to help improve nutritional value of cereals by improving bioavailability of vital minerals.

Deficiency of micronutrients like phosphorous, iron, calcium and zinc is a major health issue particularly for vegetarians. In plants, phosphorous is stored mainly as organic phosphorous called phytate, which is an anti-nutritional factor (ANF). Nuts, seeds, beans and whole grains are rich in phosphorous, while vegetables and fruits have lesser quantity. Despite this, people dependent on vegetarian diets not only exhibit deficiency of phosphorous as well as other minerals. This is because humans lack an enzyme called phytase needed to convert phytate into free phosphorous for absorption by the body.

The newly identified enzyme promises to address this problem. It has been found to effectively dephytinize the phytate and generate free phosphorous. Researchers have also shown that it also helps to increase bioavailability of iron, zinc, magnesium and calcium.

Speaking to India Science Wire, Naveen Kumar Navani, who led the research at IIT Roorkee, said the enzyme was identified, cloned and characterised from a probiotic bacterium called *Lactobacillus fermentum* NKN51. The bacterium was isolated from ethnic cheese (called churpee) made from milk of Himalayan yak from Khardong village in Nubra valley, Leh. The enzyme has been named 'phyLf'.

"Dephytinisation of durum wheat and finger millet flour with the purified enzyme, followed by in-vitro model of gastric digestion showed increased levels of bio-accessibility and dialyzability of iron, zinc, magnesium and calcium contents", he said.

Asked how he got around working on ethnic fermented food churpee, Navani said he thought of studying milk products from yak as he had a friend who hailed from Nubra valley.

Conventionally, phytase enzymes are derived from fungi and are considered fit for use to improve nutritive values of poultry and other livestock feeds. "We were looking for a source that could be used to improve food items consumed by humans - a food grade bacterium. We tried samples of milk and other dairy products of cow, buffalo, sheep and goat from different parts of the country. We could isolate some enzymes but they were not giving satisfactory activity. It was then we tapped a friend who from Nubra valley and requested him to get samples of yak milk and its derivatives," recalled Dr Navani.

The research was funded by the National Agricultural Science Fund of Indian Council of Agriculture Research (ICAR) and Uttarakhand Council of Science and Technology. The researchers have published results of their work in a recent issue of journal *Bioresource Technology*. Besides, Navani, the team included Rekha Sharma, Piyush Kumar and Vandana Kaushal of IIT, Roorkee, and Rahul Das of Indian Institute of Science Education and Research, Kolkata.

As for the next step, Navani said he and his team were now working in collaboration with Dr Ajit Yadav of ICAR's Central Avian Research Institute at Izzatnagar to apply this purified phytase enzyme along with other plant derived antimicrobials to see their efficacy on reducing the load of pathogenic bacteria like *Salmonella* and improving the growth performance of poultry. In the long term, this enzyme could be used in enhancing the micronutrient availability to infants, pregnant women and the elderly.

New Hope For Diabetics: IIT-B Develops Implant That Can Control Blood Sugar!

<https://www.thebetterindia.com/138989/iit-b-develops-thread-like-implant-for-diabetes/>

With over 60 million adults in India suffering from diabetes, this thread like implant in pancreas will put an end to diabetic medication in the future.

Prof. Jayesh Bellare from the core faculty of Chemical Engineering department of IIT Bombay in 2008 started a very ambitious project to develop a bio-artificial pancreas that can be implanted into the body to help to combat diabetes.

The problem they faced was that bio-artificial implantations like these were rejected by the body as these "foreign objects" will trigger an immune response, causing the immune system to attack the pancreas itself.

To overcome the problem, the researcher made these patented hollow fibre membranes using a polymer called polysulfone. “The hollow fibre membrane is a narrow tube about 1 mm in diameter with pores in the wall,” explains Prof. Jayesh Bellare to Research Matters.

“The advantage of our hollow fibre membrane is that it supports the cells to grow by mimicking the extracellular matrix in which the cells naturally grow, and simultaneously, allows insulin to reach the patient while preventing an immune reaction from cells if they are of foreign origin,” adds Prof. Bellare.



This membrane is as thin as a thread and can sit on or near the pancreas later, activating itself and secreting insulin. The hollow membrane hosts pancreatic cells that secrete insulin through its permeable walls.

The researchers have tested the device with both human stem cells derived from the umbilical cord, as well as islet cells from pig pancreas. “For the first time, we have successfully encapsulated human stem cells, and porcine cells in our novel and patented material,” states Prof. Bellare.

These implants were placed for 30 days in diabetic mice, and no abnormalities were found. Significantly, blood vessels were seen growing on the cells of the implants, suggesting that the immune system accepted the implant.

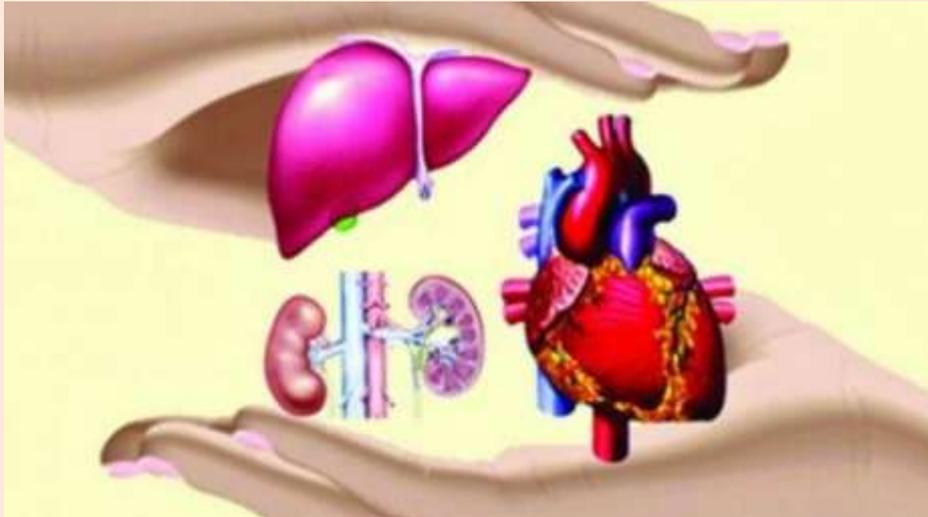
Over the past decade, diabetes has become a universal problem and India alone is home to over 60 million adults with diabetes. Diabetic patients, especially type 1 patients, suffer from the inability to produce insulin. Type 1 diabetes is also commonly seen in children.

The developed technology can bid goodbye to conventional diabetic pills and insulin. The one-time operation could solve the epidemic of diabetes. But the ten-year research is only the beginning. From carrying out long-term tests in mice to successful human trials, this technology can prove to be a gateway for many similar implants.

Hyderabad: IIT’s artificial pancreas raises hopes

<https://www.deccanchronicle.com/nation/current-affairs/240418/hyderabad-iits-artificial-pancreas-raises-hopes.html>

It is found to grow and sustain cells which produce insulin. It can be inserted in the abdominal muscles.



The bio-artificial pancreas is a device made using the polymer based hollow fibre which will be fitted near the pancreas.

Hyderabad: The development of bio-artificial pancreas which can be implanted in diabetic patients to manage the disease has been successfully tested on mice and pigs at the Indian Institute of Technology's chemical engineering department in Mumbai.

The bio-artificial pancreas is a device made using the polymer based hollow fibre which will be fitted near the pancreas. It is found to grow and sustain cells which produce insulin. It can be inserted in the abdominal muscles.

Dr Shyam K, senior endocrinologist said, "In type 1 diabetes, artificial pancreas will help to treat the patient better. In 2019, a pharmaceutical company from United States of America is launching an external device which will do the function of artificial pancreas."

Dr Ramesh Sharma, senior endocrinologist said, "The review of the artificial device in clinical trials has been encouraging. The body immune system has also not attacked the device. Hence using the right kind of material which is presently being used in implants by being compatible with the body will work positively. It will pave the way for better management of diabetes."

Encourage startups to create jobs: AICTE chairman

<https://timesofindia.indiatimes.com/city/chandigarh/encourage-startups-to-create-jobs-aicte-chairman/articleshow/63791275.cms>



CHANDIGARH: At a time when there is a big question mark on the employability of engineering graduates, All India Council for Technical Education (AICTE) chairman Anil Sahasrabudhe has said that colleges and universities should emphasize more on startups. "There are lots of opportunities for students starting their own entrepreneurial journey," Sahasrabudhe said, adding that engineering graduates should focus more on startups rather than looking for jobs in large industries and corporations. He was talking on the sidelines of a symposium in Panjab University on Monday.

"The types of jobs are changing and there are new emerging areas in which we need to train our faculty to further teach students. More emphasis should be on startups and there are lots of opportunities for students starting their own entrepreneurial journey. We are encouraging startups in colleges and universities. They can develop their own way of funding through alumni, their college as well as industry. The department of science and technology and NITI Aayog can fund only limited number," said Sahasrabudhe.

On the means to tackle low employability in engineering graduates, he said, "The curriculum itself is outdated in many colleges and universities. It needs to be updated so that our students learn what is required by the industry. In case the faculty is not trained to teach that syllabus, we will train them through massive open online courses (MOOC) so that they are able to learn these course content at their respective locations."

The AICTE chairman state that the connect between the students and faculty was missing and that was the reason behind agitations in colleges and universities. Elaborating on a three-week module where one faculty member would mentor a group of 25 students in the higher educational institutions, he said that the programme was meant to connect students with the faculty and strengthen the bond. Sahasrabudhe is of the opinion that after implementing this programme, the students would refrain from "agitating" in educational insitutions.

"A group of 25 students will be associated with one faculty member under the programme and the students will interact with faculty members, hold discussions, exercise, go to picnic and movies together. The faculty member will automatically become a guardian for the students. Instead of agitating and creating problems in the colege/university, they will go to that faculty member and resolve the issue. The connect between the students and faculty is missing today. All agitations in the colleges and universities can be overcome by addressing the issue in this way," he added.

On mobile phone while driving? Clear and present danger ahead

<http://www.zeebiz.com/india/news-on-mobile-phone-while-driving-clear-and-present-danger-ahead-44067>

It takes 40 per cent more time for motorists talking on phone to react to pedestrian crossing as opposed to an alert driver, reveals an IIT-B study. Drivers indulged in texting and chatting take 204 per cent more time in responding to the same situation, says the survey.



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The study was conducted with 100 licensed drivers of three age groups at the institute's lab. Using a simulator, the participants drove under five scenarios. For each of these scenarios, the total drive was 3.5-km long, and had one hazardous event - a parked vehicle or a pedestrian crossing the road. The researchers then measured the 'reaction time' for each driver.

The results of the study showed an alarming increase in the driver's reaction time for all of these scenarios.

For the hazardous event of pedestrian crossing, drivers having a simple conversation took 40 per cent longer to react, compared to those who did not use a phone. The scenario where drivers indulged in complex texting took thrice the time.

The self-triggered transformation of human into 'sloths' is a cause for concern as they add to the loss of lives on roads. The use of mobile phones while driving resulted in 2,138 deaths in 2016, according to data released by the transport ministry. There were 172 such fatalities in Maharashtra in that year.

The IIT-B researchers said the findings were similar when handling the other hazardous event of a parked vehicle crossing the road. Here, simple conversation caused a 48 per cent increase in reaction time while complex texting caused a 171 per cent increase.

"The main reason behind the increased reaction time during the use of the phones is the reduced scanning of the roadway ahead, and thus a failure to notice sudden events which leads to a huge increment in the reaction time", said Nagendra R Velaga, associate professor at IIT-B who conducted the research along with his co-author Pushpa Choudhary.

“The findings of the study may serve as an informative reminder to society that phone use during driving is not only harmful to the person who is driving but also to other road users” added Velaga.

In a month's time, India will have a one-stop shop for all key infra data

<https://economictimes.indiatimes.com/news/economy/infrastructure/now-a-big-data-boost-for-infrastructure-sector/articleshow/63887216.cms>

New Delhi: Researchers from Indian Institutes of Technology (IIT)-Madras and Bombay along with Harvard University are using big data to build India's first comprehensive database on infrastructure projects called Integrated Database on Infrastructure Projects (IDIP).

The mapping of infrastructure projects will include the entire infrastructure sector and all types of central, state projects and public private partnership (PPP) ventures. It will also cover all phases of the project—project design and formulation, development, construction as well as operation.

“This is being envisaged in Integrated Database on Infrastructure Projects in India which is likely to be launched in a month's time,” said Thillai Rajan A, a faculty of the department of management studies at IIT Madras.

The researchers are also collaborating with the National Highways Authority of India (NHAI), state governments and private sector infrastructure developers. “We are in the process of collaborating with government bodies to continuously update the data on operations of various projects, thus making it almost real-time,” he said. India's infrastructure sector is one of the largest in the world, with the recent Economic Survey pegging the country's infrastructure development needs at \$4.5 trillion by 2040.

Researchers, policymakers, corporations, investment agencies and others associated with the core sector would be able to access this database to study and analyse the trends in the sector almost on real-time basis, said Rajan.

The rollout of IDIP would help in ensuring better returns to taxpayers with increased transparency and accountability among all the stakeholders in the infrastructure projects.

“Since the public sector will continue to play a significant role in infrastructure development, the database would help to achieve better social and economic returns on taxpayers' investment,” said Rajan.

This development is being led by Rajan, IIT Madras, in collaboration with faculty members and research students of other institutes including IIT Bombay, CEPT University-Ahmedabad, Harvard Kennedy School and Harvard University, said Rajan.

The faculty members are the technical experts on this project who decide on data requirement and closely monitor the data acquisition process.

IIT Madras has also signed a memorandum of understanding with a startup—Akara Research and Technologies—for developing solutions for IDIP, he said. The database would also stimulate cutting edge first-hand research in this sector. This is how the IDIP will work—the database would use advanced data analytics tools and a map-based interface to present various dashboard views. “Query-based tools would enable the users to drill down to specific features, say, for example, the projects developed by a specific developer, or road projects exceeding a certain length, and so on,” Rajan explained.

Researchers and others would also be able to download the relevant datasets, in addition to the analytics feature of the database.

India Needs More Engineering Doctorates, PM Fellowship to go a Long Way

<http://bwpeople.businessworld.in/article/India-Needs-More-Engineering-Doctorates-PM-Fellowship-to-go-a-Long-Way/24-04-2018-147239/>

Presently, each IIT produces on an average about 400 M.Tech students and about 50 PhDs per year in half a dozen engineering disciplines. This paints a gloomy picture with regard to the technology research in the country. This article is authored by Vinit Goenka Member -Governing Council CRIS , Ministry of Railways.

According to an OECD report, the US has at least twice as many Ph.D. graduates as Germany, its nearest rival. In 2014, 67,449 people graduated with a Ph.D. in the US, compared with 28,147 in Germany. Next in line is the United Kingdom, which just pips India into third place with 25,020 Ph.D. graduates. India had 24,300.(Source World Economic Forum).

Only 77,798 candidates are pursuing Doctorate in Philosophy (Ph.D.) in India across subjects from humanities to commerce and medicine to agriculture. (Source TOI). More than the number, the quality of education being imparted to the students is more alarming.

In fact, the quality of higher education especially at the doctorate level has consistently depleted in the last couple of decades, primarily because of lack of infrastructure and trained guides who can direct the researchers in the right direction. Lack of monetary support to the students at the crucial level of their research has played a pivotal role in discouraging people from taking subject researches seriously.

In India, only 0.25 per cent of students enrolled at graduate level takes to Ph.D. in India and only half of the scholars submit their thesis to obtain a doctorate. The rate of women’s enrollments in higher education drops from 42 per cent at the graduate level and 40 per cent at the post-graduate level to 34 per cent at the research level.

The central government has already announced that it will provide comprehensive support including financial assistance to science students to pursue Ph.Ds in IITs (Indian Institute of Technology) and IISc (Indian Institute of Science).

Union HRD Minister Prakash Javadekar announced that the Prime Minister Research Fellowship scheme for 1,000 BTech students for pursuing Ph.D. courses at IITs and IISc will help convert brain drain into brain gain.

As per reports, the Union Cabinet approved the scheme at a cost of Rs 1,650 crore for a period of seven years, beginning in 2018-19.

The scholars will be paid Rs 70,000 a month during First two years, Rs 75, 000 per month During the third year and Rs 80,000 per month Fourth and the fifth year.

The programme envisioned by the Prime Minister and announced by the HRD Minister Prakash Javadekar seems to go a long way in tapping the talent pool of the country for carrying out research indigenously in cutting-edge science and technology domains.

The move will also strengthen the country's industrial growth and indigenous researchers will be capable of providing advanced and cost-effective technologies in time bound manner. This will not only save the time but also shines India's image in the global competitive markets.

In fact, most of the industrially advanced economies including the United States, Russia, Japan, South Korea, and the European Union nations have self-sufficient researchers who impel industrial growth of their respective countries.

Despite sharing similar political systems, India has lagged far behind in producing native scientists that have adversely effected the growth of infrastructure here resulting India's lingered progress in providing quality sanitation facilities, potable water, electricity and roads to its people. Despite having technology boom and decent economic growth in recent years India could not pull off in the manufacturing sector, the weakest link in its developmental metric primarily due to lack trained, coherent local talent.

This in some way or the other has covertly benefitted India's fierce competitors.

The Prime Minister Modi's pet scheme will most likely address India's national priorities at one hand while the shortage of quality faculty in premier educational institutions of the country on the other. The move will also reduce the brain drain from the country and may encourage brain gain in the long term.

Just to put a comparison, India produced roughly 2.5 lakh engineers last year, which were much more in number than the US who produced around 70,000 but far less than China where more than six lakh engineers got graduated, although there is no independent verification about the numbers from the People's Republic of China. These numbers are directly effecting the infrastructure and economic growth of these countries too.

That may be the primary reason behind the BJP governments' thrust to promoting technical education. Be it the center or various BJP ruled states, government pushing technical education institutes for providing education to the students.

The record states that more than 1.5 lakh students appear for the Joint Engineering Exam (JEE) every year but only four thousand could qualify for the IITs, the premier technology colleges of the country.

On the other hand, a state like California with a population of just four crores has ten University campuses imparting better or qualitatively equivalent education than the 20 IITs for 100 crore Indians.

However, the current student-to-faculty ratio at many IITs is more like 10:1, which is a luxury, compared to the 20:1 in most of the US public universities. This clearly implies that IITs have potential to have swollen intakes of students. In fact, these institutes must shed dual degree programmes and focus on producing quality engineers. Comparatively Tshinghua University in China alone turns out more than 2,000 undergraduates in engineering, far more than any of Indian institute.

The IITs have vast spaces and they must be utilised optimally. This is one way of exciting young minds about science since they will be in the same campus as top-notch scientists.

Fortunately, India has thousands of science colleges and country has produced B.Sc and M.Sc students in abundance ever since 1947, a few of whom moved on to attain PhD and before taking to the academia and education industry. Currently, India gets about 7,000 PhDs in science every year, including agricultural sciences, while engineering gets just a paltry 700-plus annually.

Presently, each IIT produces on an average about 400 M.Tech students and about 50 PhDs per year in half a dozen engineering disciplines. This paints a gloomy picture with regard to the technology research in the country.

To improve the situation, the IITs must modify their course structures and make a provision for the meritorious students to finish their MTech programme in one calendar year and move on to the Ph.D. stream quickly, thus getting the seamless postgraduate education leading to a Ph.D. degree.

In addition to that metropolitan cities such as Bangalore, Chennai, Hyderabad to have an aggressive, evening M.Tech programme for relevant industries. Students here are hungry for knowledge to move up the economic ladder.

The Central government's move to support one thousand B. Tech students with the Prime Minister Fellowship scheme is a welcome step aimed to provide thrust to subject-specific research in India. Being hopeful that the scheme is religiously implemented with the same amount of zest it was announced, the day is not far when India will be a knowledge super-power.

April 23

Experts from IIT, DU to help SHOs, inspectors keep their anger in check

<https://timesofindia.indiatimes.com/city/delhi/experts-from-iit-du-to-help-shos-inspectors-keep-their-anger-in-check/articleshow/63873175.cms>

NEW DELHI: Delhi Police has been bringing in personnel management experts from IIT-Delhi and Delhi University to improve the communication and management skills of station house officers to help them control their stress levels while managing work, including equitable assignment of jobs to subordinates. The SHOs are also being trained in anger management to avoid confrontational incidents. So far, 171 cops from different police stations have attended such training sessions.

“Our aim is to turn the force into a more professional unit,” said police commissioner Amulya Patnaik. “The SHOs and inspectors are the point persons on the ground and handle the day-to-day work of Delhi Police. The idea is to train them to keep their stress levels low so that they can put in their best while interacting with the public and the community.”

The capital’s police force has roped in corporate trainers, faculty members from IIT Delhi and DU and senior public prosecutors to discuss legal issues while dealing with typical crime cases. Suman Nalwa, DCP (training), explained, “During the training sessions, the officers are taught about leaderships traits, how to motivate their sub-ordinates and improve the morale of their colleagues. They also get training on communication skills, increasing empathy, dealing with grievance redress and reacting to emotions of a complainant.”

Keeping the legalities involved in mind, the inspectors were also taught on how best to reply to questions from judges during court proceedings. “This training was of particular help since we sometimes have to appear for legal hearings on cases we solved as junior officers. It often happens that the senior officer who had guided us on the legalities then might have retired,” said an SHO.

The program will evaluate a policeman on criteria such as understanding the nature of a crime or a situation and reacting accordingly. Cops acting violently when managing protesters is another focus area.

“This initiative will improve policing, police-public relations and the professional skills of officers,” reiterated Madhur Verma, DCP PRO “We hope through individual learning, we can progressively affect a change in the whole organisation. These positive changes will, in turn, affect society at large.”

During the training programme, each policeman is given the opportunity to seek guidance on handling specific situations. Sub-inspectors and assistant sub-inspectors who take the refresher course will also have to undergo this training later.

Autonomy without Responsibility Will Be of No Use

<http://bweducation.businessworld.in/article/Autonomy-Without-Responsibility-Will-Be-of-No-Use/23-04-2018-147188/>

We need serious reforms in our examination system says VC Shevgaonkar of Bennett University in an interview with Waqar Ahmed Fahad



Raghunath K Shevgaonkar took over as Bennett University's Vice-Chancellor on January 22' 2018. An alumnus of the Indian Institutes of Technology at Kanpur and Mumbai, Shevgaonkar was previously Vice-Chancellor of the University of Pune and Director of IIT Delhi. He has an experience of teaching engineering for almost 4 decades. A few excerpts from his interview are placed below

Q. As a renowned veteran in the field of engineering education, can you help understand why Engineering continues to be a preferred option? In the last decade or so, Liberal Arts, Design etc have been received well. But not as much as engineering. Why?

This is related to job opportunities and the quality of life that one gets after the graduation. The jobs in the core engineering sector are still limited but there are plenty of opportunities in the IT sector which accept any discipline of engineering. In fact, due to this demand, many engineering institutions started in last in two decades. However, in recent time, many more non-engineering avenues are emerging that can give good living after graduation. As a result, students are not sticking to only engineering though engineering still remains the first preference.

Q. Global rankings like QS and Times are quite popular, do you think a competitive environment created by these will help bring quality to the education sector?

The ranking is a measure of quality, only to some extent. Appearing in a ranking list cannot be the sole objective of an institution. If an institution has quality, it has a potential to appear in the ranking list. However, it should be noted that each ranking system has an emphasis on certain parameters, and there is no weight for certain activities. For example, work done towards industrial development or defense-related development is given no weight although it plays an important role in national needs. Also, some of the parameters are non-objective. For example, 'perception' about an institution is one of the high weight parameters that is non-objective in some rankings. So, some of the parameters if tweaked can alter the ranks significantly. It would, therefore, be better if the institutions are categorized in blocks like A, B, C etc. as per their performance (as is done by NAAC) rather than a numerical rank.

Q. For those institutions who do not believe in rankings, how does one measure their performance as an institution?

Institutions should certainly believe in quality and excellence. One may define a very objective way of defining excellence. For example, research published in quality journals, industrial development, qualification of faculty, state of art infrastructure, transparent processes, students' performance in placement and competitive examinations, etc. may serve as a measure of defining excellence.

Q. The Bennett university recently received funding from the UK for an Artificial intelligence skilling project. Can you tell us about that?

Yes, Royal Academy has provided funding for creating skilled manpower in AI and deep learning. The Bennett University will lead the project. The project was formally inaugurated by Chairman, AICTE. Under the project 25 primary institutions will be identified. Each of these institutions will then mentor 10 institutions each. So 250 institutions in a hub and spoke model will train few thousand teachers who then will train few lakhs skilled manpower across the country. Further, AICTE is providing support for adding more institutions in the whole chain. In addition to the skilled manpower creation, the project will help in developing AI applications for societal needs. An industrial partnership is also envisaged under the project.

Q. Do you believe that AI will determine and change the course of the various streams of engineering?

With time, AI is certainly going to play an increasing role in all streams of engineering.

Q. You have been the frontrunner in asking for autonomy for educational institutions, the recent update by UGC, do you see that as a step towards your vision of better quality education in India?

Autonomy is extremely important for an educational institute. However, autonomy comes with responsibility. If autonomy is not handled with responsibility, it can destroy the education standard instead of improving it. We have both type of institutions: Institutions like IITs that use autonomy for creating highest standard of education, and institutions that exploit autonomy for maximizing personal gains. The UGC has given autonomy to those institutions which have shown consistency in their performance. The step by UGC, therefore, is the most welcome step. Hopefully, more and more institutions will qualify for autonomy with time and the education standard as whole will rise in the country!

Q. What is your vision for Bennett University and what are the challenges that you need to overcome to compete with other established institutions?

Bennett university is a comprehensive university with four schools to start with a name, school of engineering and applied sciences, school of management, school of law, and school of mass communication and liberal arts. We, therefore, want to create something unique that cuts across these diverse disciplines. A culture of entrepreneurship is inculcated in all the students right from the beginning of all the programs. Within the guidelines provided by the regulatory bodies, ample flexibility has been provided in the curriculum to bring out the best from the students. My vision is, Bennett university should become an intellectually stimulating place that creates original thinkers, innovators, researchers who provide solutions to societal problems, citizens of highest values, and professionals of with high integrity and ethical standards.

Q. When does an institute/ university achieve academic excellence? Is such an excellence a reality? Can it be achieved? How?

Excellence in education indeed is a reality. However, to achieve it, all the university stakeholders should share the same vision. Students and faculty are the two main pillars of an educational institution. If these two pillars are of high quality, other things automatically fall into place. In

addition to these two pillars, institutions must have a strong governance, a governance that nurtures excellence and not mediocrity. A strong leader with high integrity and ethical values is also a need of the hour.

Q. There is little doubt that private universities provide quality exposure to students, but government colleges are far more affordable. Is there any way we can bridge this gap or is it wishful thinking?

First of all, we must realize that quality education is not a cheap proposition. High-quality education does require substantial investment and recurring funds. Govt. institutions absorb part of the cost to make the education more affordable to students. Since the private institutions do not get Govt. subsidy, the entire cost of education is to be borne by the students. In fact, that is the true cost of quality education. It is highly desirable that we develop a realistic financial model for educational institutions that are at least self-sustaining. A strong mechanism to make the institutions accountable is also needed. There should be ample borrowing opportunities with lowest interest rates so that students can borrow funds for their education at affordable price. It is clear that to meet the educational needs of the country private players have to play a substantial role. A good financial model for educational institute needs to be created with the highest priority.

Q. Finally, as engineering aspirants continue to constitute a major percentage of the student community in our country, what would you advise them?

A good engineer needs three things namely, solid foundation, good logical reasoning, and up to date technical skills and subject knowledge. The first two have to be acquired in formative years of engineering education. The third part is continuously evolving and therefore requires lifelong learning and hands-on experience. However, to make the first two attributes strong, we need serious reform in our examination system. The success of engineering education, therefore, does not lie only in state of art curriculum but in the execution of that. Students should realize that a marks-centric education cannot make them a successful engineer unless they show performance worthy of their marks.

Top scholars seek to prioritize innovative research as one-day conclave concluded at IIT Ropar

<https://timesofindia.indiatimes.com/home/education/news/top-scholars-seek-to-prioritize-innovative-research-as-one-day-conclave-concluded-at-iit-ropar/articleshow/63877597.cms>

ROPAR: Some of the top scholars of the country underscored the important of ever evolving a research culture that had humanism, ethics and excellence at its core values during the research conclave hosted by the Indian Institute of Technology (IIT) concluded on the institute campus on Sunday.

Eminent researchers Prof. D. K. Srivastava, a former director of the Variable Energy Cyclotron Centre, Kolkata and Prof. Sanjay Mittal, Head Aerospace Engineering at IIT Kanpur participated in the panel discussions and a special interactive session with Prof. S.K. Das, Director, IIT Ropar.

The event attracted a large number of young researchers who attended the session along with the members of the faculty and delegates from academia and industry.

Prof. D. K. Srivastava underscored the importance of a research culture that had humanism, ethics and excellence at its core values, emphasizing the importance of the research atmosphere in an institute or in a university defining its true character. Also stressing on the need for institutionalizing research excellence, he said while directed research needs to be given a priority, for innovation the basic research should also be encouraged.

Prof. Sanjay Mittal spoke of the emerging paradigm shift in research and its wider implications for sustaining a vibrant research culture and spoke of the need to strive towards excellence and innovation.

Prof. S. K. Das shared the highlights of his research journey with the audience and underscored the importance of the researcher having an eye for detail. Several challenges while doing research were discussed during an interactive session.

The participants in the conclave asked a range of questions to the panellists.

This event hereafter will be organized annually so that the developments are updated and inputs from researchers are considered in taking the progress further to achieve goals.

The conclave included four invited talks, 87 posters, and 10 flash presentations.

IIT-Bombay opens institute's labs to school students

<http://indianexpress.com/article/cities/mumbai/iit-bombay-opens-institutes-labs-to-school-students-5147873/>

In February, at least 40 class XI students from migrant schools in Jammu and Kashmir and their teachers visited the IIT-B campus for five days. The students saw the labs and were briefed about some of the research work by PhD scholars. Afterwards, they attended science and sky watching workshops, among other co-curricular activities.

Since February, IIT-Bombay has hosted two groups of school students and introduced them to the research being conducted in its labs. (Express Archive)

IIT-Bombay has started an outreach programme in which school students will be given a tour of the institute's labs once a month. The purpose of the programme is to make science popular among school students. While IIT-Bombay has an annual tech and cultural fest, where people from all walks of life can attend events at one of the premier institutes of the country, in the outreach programme, students will be able to see the research being done by the scholars there. Since February, IIT-Bombay has hosted two groups of school students and introduced them to the research being conducted in its labs.

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of the research work by PhD scholars. Afterwards, they attended science and sky watching workshops, among other co-curricular activities.

A month later, class XI students from Bombay Scottish School spent an afternoon at IIT-B. The students visited laboratories, conducted experiments and interacted with IIT-B faculty, said Abhijit Majumder, assistant professor at the Chemical Engineering department, who spearheaded the programme.

"This is just the beginning of what we visualise as a full-fledged year-long outreach programme, where we could host as many as 50-60 school or college students per month. The idea is to give students an exposure to our research work. We hope this will encourage students to pursue scientific research as a career," said Majumder.

According to Majumder, such interactions also help the research community on campus. "We get to evaluate our work through the eyes of young students, who are uninhibited and provoke us to think differently," he said.

Devang Khakhar, director, IIT-B, said the institute is planning an outreach programme where the campus is made more accessible to school and college students and teachers. "We are in the process of formalising the outreach programme to popularise science among students. We hope that if students get a peek at what goes on here, it will encourage them to try their hand at science, too," he said.

April 22

IIT-Delhi's 14th Open House for showcasing the year's innovations sees more than 7,000 school children in attendance

<https://www.firstpost.com/tech/news-analysis/iit-delhis-14th-open-house-for-showcasing-the-years-innovations-sees-more-than-7000-school-children-in-attendance-4441157.html>

More than 7,000 students visited the Indian Institute of Technology, Delhi (IIT-D) as it opened its gates to school children on 21 April, showcasing a number of its innovations and technologies it developed in last one year.

A number of devices and gadgets were displayed at the 14th Open House, organised by the premier institute, which included flexicrutch, a special crutch to ease walking for disabled, nasal filters to block pollutants, and biodegradable tableware made of rice straw.

"I really liked the event. Especially the hologram," said Lakshya, a class 12 student of Adarsh Public School, Dwarka.

According to an IIT official, students from more than 100 schools came to see the innovations.

"I was surprised to notice that about 7,000 school children came to the Open House this time. Last time this number was around 3,000. Schools from all over Delhi, and even as far as Sonapat came to IIT to see the the products," B. K. Panigrihi, a faculty at the Electrical Engineering department of the institute, told IANS.

A total of more than 50 innovations, software and hardware both, were on display, he said.

Some of the other key projects on exhibition this year were the Street Sizing system for Chirala Handloom Cluster, Tactile Graphics: Representation of Visual Images through Raised Lines Adapted for the Sense of touch, OnBoard: a system that enables a person with blindness to safely board public buses without any dependency amongst many others.

JNU'S NEW CENTRE TO ACT AS HUB OF IDEAS

<http://www.dailypioneer.com/sunday-edition/sunday-pioneer/town-hall/jnus-new-centre-to-act-as-hub-of-ideas.html>

Jawaharlal Nehru University (JNU) will launch its own state-of-the art “Incubation and Innovation Centre” that would act as a hub of ideas, research, innovations and start-up by students and faculty. Slated to start from the next year, the centre would incubate those ideas and plans that are of some commercial value or of some social importance.

Whereby, a “Research Network” would be created with engagement of companies, students, faculty and experts in various disciplines from other institutes and universities. Also, there would be an exchange and utilisation of resources among them. The centre will work in close coordination with other centers of JNU, other universities and technical institutes including the Indian Institute of Technologies (IIT's).

For realising it JNU claims to have made a “start-up” policy and is working on plan to finalise the policy related to Research and Intellectual Property Right (IPR).

“The ideas that are of any commercial value or are of any benefit to society would be encouraged and incubated. We will contact industries and also make market accessible for these start-up and innovations,” said Professor Rupesh Chaturvedi, Director, Research and Development, JNU.

“Start-up and ideas not only in the field of sciences but also social start-up would be promoted and incubated. Students and faculty from all streams like social science, humanities, management, and sciences will work in close coordination upon their respective ideas that have the potency to mature into a start-up or company,” he said.

JNU has already applied and given presentation for the “Atal Incubation Centres” at NITI Aayog and are waiting for the approval, told a JNU official. Also, JNU will have a “Science Communication Centre” at its Centre for Media Studies, with special emphasis on the role of media and communication in the field of sciences.

The centre would also provide some certificate and diploma courses apart from working upon how to communicate the contents of specialised scientific journals in simpler form for common readers.

April 21

गर्मी की छुट्टी में आईआईटी के छात्र इंटरनशिप से बदलेंगे ग्रामीण भारत की सूरत

<https://www.amarujala.com/national/iit-student-internship-in-summer-vacation-will-change-with-rural-india>

आईआईटी के बीटेक छात्रों को अब ग्रामीण इलाकों में अपना पहला इंटरनशिप करना होगा। इस दौरान छात्रों द्वारा किए गए कार्यों के लिए क्रेडिट स्कोर मिलेगा। जो कि अकादमिक रिपोर्ट में जोड़ा जाएगा। खास बात यह है कि बतौर पायलट प्रोजेक्ट आईआईटी दिल्ली कैंपस से इसी सत्र से शुरू होने जा रहा है। यह सभी के लिए अनिवार्य होगा।

आईआईटी दिल्ली के डायरेक्टर प्रो. रामगोपाल राव के मुताबिक, अभी तक इंटरनशिप में छात्र कंपनियों में जाकर सीखते हैं। लेकिन अब छात्रों को तकनीक की पढ़ाई के साथ-साथ भारतीय परंपरा, संस्कृति और आम लोगों की दिक्कतों से भी रूबरू करवाया जाएगा। इंटरनशिप का मुख्य उद्देश्य है कि छात्र ग्रामीणों की दिक्कतों को समझ सकें। पचास छात्रों का गुप दिल्ली समेत एनसीआरके गांवों में जाएगा।

गर्मियों की छुट्टी में बहाएंगे पसीना

प्रोफेसर राव के मुताबिक, आईआईटी में आम लोगों की दिक्कतों को दूर करने पर आधारित रिसर्च को प्राथमिकता दी जा रही है। गर्मियों की छुट्टियों में छात्र इंटरनशिप करेंगे। छात्र वहां पेयजल, खेती, परिवहन, शौचालय, सड़क, नालियों, कूड़ा निस्तारण आदि को समझेंगे। वह समस्याओं की जड़ तक पहुंचकर प्रोफेसर की सहायता से उसका हल खोजेंगे। प्रोजेक्ट सफल रहने पर इसे गांव के लोगों तक पहुंचाया जाएगा। बाद में इस योजना को केंद्र सरकार की उन्नत भारत अभियान योजना से भी जोड़ा जाएगा।

एम्स के डॉक्टरों के साथ भी होगी ट्रेनिंग

प्रो. राव के मुताबिक, किसानों की समस्याओं की तरह ही आईआईटी के छात्र डॉक्टरों को इलाज के दौरान आने वाली समस्याओं को समझकर उन्हें हल करने की भी कोशिश करेंगे। इसके लिए ये छात्र एम्स के डॉक्टरों के साथ काम करेंगे। जल्द ही आईआईटी दिल्ली और एम्स के बीच एक करार होने जा रहा है।

New method developed for faster typhoid diagnosis

<https://www.downtoearth.org.in/news/new-method-developed-for-faster-typhoid-diagnosis-60266>

Developed by scientists at IIT, Delhi, the new test requires minimal blood quantity, besides being accurate and potentially cost-effective



Indian scientists have developed a rapid and accurate method for diagnosis of *Salmonella typhi* bacteria which causes enteric fever and typhoid.

The new test, developed by scientists at the Indian Institute of Technology, Delhi, requires minimal blood quantity, besides being accurate and potentially cost-effective. Blood-culture based diagnosis of enteric fever, used at present, is time-consuming and requires skilled practitioners and costly instruments. Besides, these methods sometimes even fail to detect and identify the bacteria correctly.

In blood culture tests for diagnosis of enteric fever, once the bacteria are separated, identification depends on various biochemical and serological tests. Most serological methods, which look for antibodies in the body, are unable to pick up an infection in the early stages as the numbers are low. The lack of specific, rapid and affordable diagnostic tests leads to inappropriate use of antibiotics in all fevers cases.

The new method uses magnetic nanoparticles coupled with antibodies. In tests, it was found that over 65 per cent bacteria cells got bound to nanoparticles within 30 minutes. The bacteria were separated from nanoparticles using magnets by heating it at 65°C for 45 minutes. The cells were reheated at 100°C for 5 minutes to breakdown the covering of bacteria to recover the genetic material. Then the liquid was collected and put through the loop-mediated isothermal amplification (LAMP) process to increase in availability of genetic material required for identification of the bacteria.

This method is quick as there is no need for multiple cycles of rapid heating and cooling as required in traditional methods. The minimum time taken for conventional methods to confirm the presence of disease-causing bacteria is 72 hours while the new method confirmed it in 6 hours, according to results of the study published in journal PLOS One.

The method, according to the study, has the potential for clinical use due to its high detection levels and ability to identify cells which can cause disease in a quicker turnaround time. In future, it can be developed into a handheld and portable device.

The research team included Dinesh Kalyanasundaram, Avinash Kaur and Ravikrishnan Elangovan (IIT, Delhi); Arti Kapil and Sandeep Jha (AIIMS, New Delhi). The study was funded by the Naval Research Board, Department of Science and Technology (DST) and Indo-German Science and Technology.

IIT Bombay Finds Easy Way To Extract Super-Healthy Oil From Pomegranates!

<https://www.thebetterindia.com/138521/iit-bombay-finds-easy-way-extract-super-healthy-oil-from-pomegranates/>

There have been other methods of extraction but there have always been shortcomings. This new method will extract the oil more efficiently with little to no shortcomings.

Pomegranates are an intriguing fruit. As old as the ancient Vedas, pomegranates have not only been consumed for their delectable taste, but also for their medicinal properties against various ailments.

The seeds of pomegranates contain unique properties, and once the oil is extracted, it takes on antioxidant, anti-diabetic to even anti-cancer properties.

The problem though lies in how the oil is extracted. Until now, the cold press method, which has an average extraction efficiency of 4.29% in weight of oil has been most common. However, it is believed to degrade the proteins in the oil

There have been other methods of extraction that involve high temperatures, using mechanical pressure and superheated hexane, but these have shortcomings too. They produce by-products that are environmentally harmful.

Discovering newer methods is crucial if we are to extract the oil within the fruit. And that's what Prof. Amit Arora and his team from the Indian Institute of Technology IIT Bombay have discovered in a new study—a new cost-effective, zero-waste method of extracting oil from pomegranate seeds, which also yields high-quality protein and dietary fibres.

The proposed one-pot oil-extraction method is also environment-friendly. The method is fairly simple and can also be used for small quantities of seeds, say the researchers.



In the proposed method, pomegranate seeds are dried, powdered and added to sodium phosphate and incubated for ten minutes at 45°C. Then, to break down the covering of the seeds, the enzyme protease is mixed, which releases the oil.

The seed-enzyme mixture is shaken continuously for four to 16 hours and then centrifuged for 20 minutes. After this, clear layers of pure oil, proteins and fibres are formed, which can then be extracted.

Talking to Research Matters, Prof. Amit Arora from IIT Bombay commented on how the oil fares against other well-known oils, "Considering the quality of oil and protein in pomegranate seeds, it can very well replace flax seeds. It is very similar to chia seeds in properties. It can be considered a replacement for many functional properties."

According to World Pomegranate Market Supply, Demand And Forecast, India has been the world's largest pomegranate producer and one of the largest exporters of fresh and processed pomegranates since 2013.

This means that the business of pomegranates still has a lot of unexplored potential. With this process of extraction, pomegranate oil could very well be one of India's major export of a healthy product.

IIT Madras launches Portal exclusively to showcase Research Scholars Profiles

<http://indiaeducationdiary.in/iit-madras-launches-portal-exclusively-showcase-research-scholars-profiles/>



Chennai: Indian Institute of Technology Madras has launched a Portal exclusively to showcase the profile of its' Research Scholars and their cutting-edge research underway in the campus. The objective is to further national and international Research Collaboration and help recruiters tap the right candidates for top-level R&D positions and internships.

The research portal (<https://scholars.iitm.ac.in/>) is in public domain and is open for access to everyone. It allows general viewers to view only the basic information of the scholars without any registration.

The portal was launched during the Sixth Edition of Research Scholars' Day (RSD) celebrations, held from 9th to 16th April 2018 to showcase the Research activities on campus.

Speaking about the Research Scholars Day celebrations, Prof Bhaskar Ramamurthi, Director, IIT Madras, said, "The Research Scholar Portal is a window for the outside world that provides a glimpse of the rich and diverse skill set and knowledge of our scholars who are about to complete their theses."

Congratulating the scholars for launching the portal during Research Scholars Day 2018, Prof Bhaskar Ramamurthi added, "Research is a core activity of IIT Madras, and our research scholars are its backbone. Their numbers have grown dramatically in recent years. After completing their doctoral studies, they go on to take up key positions in academia, industry and our national laboratories."

The Portal is aimed at providing information about Research Scholars from all departments of IIT Madras who are likely to graduate next year. It is divided into categories such as biography, Research Information, Publications, Teaching Assistant and, extracurricular activity. It has a search tab on the home page where one can search through fields such as name, roll, keywords, department and area of research.

The portal currently has information on 130 students who are likely to graduate this year. Soon, the portal is likely to extend to all the scholars who have crossed Second Year in M.S. and Fourth Year in Ph.D.

It allows general viewers to view only the basic information of the scholars without any registration. For further information, one has to register themselves in the portal and get it approved by the institute administrators. There after the portal allow you to access more information about the scholars

Speaking about the celebrations, Prof A. K. Mishra, Dean (Academic Research), IIT Madras, said, "The RSD has been catalyzing significant interaction among IIT Madras Research Scholars and bringing in a growing sense of togetherness. It is heartening to see the Research Scholars from different disciplines and diverse areas of research coming together in increasing numbers to expand their horizon of knowledge, to interact with leaders of academic and industrial R&D and to present their own research capabilities to the world."

RSD also collaborated with International Relations cell, IIT Madras, for an International fair to promote exchange programs, Joint Doctoral Degree Program, Joint Supervision Program. KLA Tencor, NOKIA and Perkin Elmer are the companies visited us during RSD for Research connect activities.

As part of the RSD Celebrations, several events were held that offered glimpses of the research underway at IIT Madras including, a Product expo, which was a platform to the research park companies to showcase their research product, an event for presenting posters by scholar besides an event for scholars to explain research in three minutes in non-technical terms.

Padmabhushan awardee Dr. T. Ramasami, Former Secretary, Department of Science and Technology, Government of India, was the chief guest of the inaugural function.

Started as a one-Day event in 2012, 'Research Scholars Day' has grown over the years to a week-long celebration. RSD 2018 had eminent personalities from various walks of life delivering lectures including Prof Jitendranath Goswami, Chairman, Advisory Board Chandrayaan-2, Ms. Tanuja Ganu, Cofounder and CTO Dataglen and MIT Technological Review awardee for Innovation under 35 years,

Dr. Abhas Mitra, Honorary professor HBNI, Prof. Ashok Jhunjhunwala, Principal Advisor to the Ministry of Railways.

RSD provides the IIT Madras research scholars an opportunity to step beyond the confines of their laboratories and witness research in its full splendour, while rubbing shoulders with the leaders of industry and academia. It provides a platform which would push the emerging breed of researchers to rise above and beyond the standards set by the pioneers of the yester generations in contributing to the empowerment of the nation through science and technology. RSD has grown bigger and better every year and RSD 2018 was a true reflection of the tremendous growth of the festival in such a short span of time.