



NEWS CLIPS

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Agilent inks agreement with IIT Delhi to enhance biotherapeutics

January 30, 2020 <https://biospectrumindia.com/news/20/15679/agilent-inks-agreement-with-iit-delhi-to-enhance-biotherapeutics.html>

The setup will be under the DBT Center of Excellence for Biopharmaceutical Technology (CBT) and will support incubated startups at IIT Delhi



Agilent Technologies Inc. has announced that it is joining forces with the Indian Institute of Technology Delhi (IIT Delhi) to promote biopharmaceutical research.

Agilent and IIT Delhi signed a memorandum of understanding under which, Agilent, a leader in the biopharma space, is contributing funds to support the incubator at IIT New Delhi to support researchers at the institute establish global best practices for identifying and characterizing biopharmaceuticals. The research conducted by IIT Delhi examines and reports on the quality of biotherapeutic products for the Indian market.

Visiting the IIT Delhi campus today, Agilent CEO, Mike McMullen, spoke about Agilent's history of innovation, focus on research and academia, and vision for the future. Likewise, the institute's Director, Prof. V. Ramgopal Rao, spoke about the institute's mission and role in promoting collaborations between academia and industry.

Agilent will be contributing funds to the IIT Delhi incubator site, as a part of its corporate social responsibility initiative, with the goal of enhancing the quality and safety of biotherapeutics. The aim

is to offer world-class training to researchers from academia and industry on protein characterization.

The setup will be under the DBT Center of Excellence for Biopharmaceutical Technology (CBT) and will support incubated startups at IIT Delhi performing protein analysis, which results will provide critical information to policy makers for ensuring safe and efficacious biotherapeutic products in India.

“We are happy to be associated with Agilent,” said Prof. Anurag S. Rathore (IIT Delhi), Coordinator of the CBT. “Agilent’s broad range of technologies will further boost our efforts at the Centre of Excellence for Biopharmaceutical Technology. This mutually constructive and productive partnership will hopefully lead to promising results for the entire biotherapeutics ecosystem.”

“We are excited to embark on this initiative with IIT Delhi, an institute with the country’s brightest minds engaged in research and technology,” said Bharat Bhardwaj, country general manager, Agilent India. “Agilent’s relationship with IIT Delhi goes back decades. The new memorandum of understanding that we have signed will further strengthen our relationship and will enhance the ability to do cutting-edge research, which can be used to improve the quality of life for the community at large, through the application of new innovations.”

Image caption: (L to R) Samir Vyas, Country Manager, Application Solution & Business, Agilent India, Bharat Bhardwaj, Country General Manager, Agilent India, Anurag Singh Rathore, Dean, Corporate Relations - IIT Delhi, President and CEO Mr. Mike McMullen, Agilent, Prof. V. Ramgopal Rao, Director-IIT Delhi, Monica Dhawan, Communications & PR Manager, Agilent India and Rahul Arora, Project Manager - Corporate Relations, IIT Delhi.

IIT Delhi startup creates Buddhi kit to make AI learning a child’s play

January 28, 2020 <https://timesofindia.indiatimes.com/home/education/news/iit-delhi-startup-creates-buddhi-kit-to-make-ai-learning-a-childs-play/articleshow/73701281.cms>



An IIT-Delhi startup has created a first-of-its-kind interactive Do it Yourself (DIY) education kit based on Artificial Intelligence (AI). Buddhi AI DIY kit can be used to quickly and easily learn the basics of AI and build AI-based solutions for real-world problems. The kit will also help people without having any prior domain knowledge or training. The idea is to assist young students, tinkerers, makers, innovators, hobbyists, teachers, educationists, artists, parents and professionals from any background.

Buddhi (Build, understand, design, deploy human-like intelligence) kit was launched at IIT Delhi on Monday. An IIT statement read: “Buddhi kit helps users develop core skills such as problem-solving, creative thinking and ability to work in teams. With the kit, creative possibilities are endless as it can be used to easily introduce AI in any existing STEAM (science technology, engineering, arts & maths) project.”

IIT-Delhi director V Ramgopal Rao said that “IIT Delhi is taking centre stage in AI-related research and development in the country. Development in indigenised AI hardware and software is critical. The kit is one such initiative by the IIT Delhi-FITT incubated faculty startup, and is a result of the many initiatives we have taken in the institute to encourage faculty members and their research students to turn into entrepreneurs.”

Developed by IIT faculty member Manan Suri, who has been recognised by MIT, the USA as one of the world’s top 35 innovators under the age of 35, the kit includes AI computing-engine, friendly AI training/inference applications and real-world AI actuation circuit boards. It is accompanied with a rich learning ecosystem that includes a high quality AI handbook, practical DIY AI projects, lessons, exercises, presentations and videos.

“The motivation behind the kit is to help young school students learn the practical aspects of a complex topic like AI in a friendly and simple manner,” said Suri.

Recently, CBSE had introduced AI as a subject in school curriculum. “The kit and its accompanying content are perfectly aligned with CBSE’s prescribed AI school syllabus,” Suri added.

Buddhi kit, which has been developed by CYRAN AI Solutions, will be provided to select institutional partners such as schools, makerspaces, tinkering-labs, education- related NGOs, government bodies, corporations, CSR bodies, or entities involved with AI-education and skilling.

Dr Maharaj Kishan Bhan passes away at 72

January 27, 2020 <https://www.biospectrumindia.com/news/66/15648/dr-maharaj-kishan-bhan-passes-away-at-the-age-of-72.html>

Dr. Maharaj Kishan Bhan, former secretary of DBT, passes away on Sunday 26th January 2020, due to his unsuccessful battle with cancer for several months



Dr. Maharaj Kishan Bhan, former secretary of DBT, Indian pediatrician and clinical scientist, passes away on Sunday 26th January 2020, due to his unsuccessful battle with cancer for several months. Dr. MK Bhan was a National Science Professor at the Indian Institute of Technology, Delhi, Government of India, President of JIPMER and an Advisor to the World Health Organization. Moreover, he was a former Secretary to the Government of India, Department of Biotechnology, Ministry of Science & Technology. As Secretary, Department of Biotechnology, Govt. of India for ten years, he played a key role in the establishment of many new Institutes, clusters and innovation support agencies in order to transform of the biotechnology sector in the country.

Dr. MK Bhan has given a significant contribution to the biotechnology sector in the past few years. He is the man behind the development of India's rotavirus vaccine in association with Bharat Biotech. He has provided guidelines for the use of Zinc as treatment of diarrhea, and delivered advocacy and leadership roles in several other research endeavors including low osmolarity ORS, identification of enteroaggregative E. Coli its association with persistent diarrhea in children and treatment approaches to this disorder.

The Management of Neonatal and Childhood Illness (IMNCI) integrated program was developed under his Chairmanship has been introduced in the reproductive child health program of the Government of India.

He was a recipient of numerous awards such as Padma Bhushan 2013, "Shanti Swarup Bhatnagar Award", 1990, for medical sciences, the highest Scientific Award below 45 years of age in Indian Sciences, National Ranbaxy Award, 1990, for Medical Sciences, Achar Gold Medal of the Indian Academy of Pediatrics, 1984, for the best original research, S.S. Mishra Award of the National Academy of Medical Sciences, 1986, for the best-unpublished research, Biotech Product and Process Development and Commercialization Award, 2003 and Pollins Foundation Research Award for US 100,000 (Year 2003).

He is MBBS, MD Paediatrics, DSc. (Honorary), Fellow, Indian National Science Academy (FNA), Fellow, Academy of Sciences (FASc) and Fellow, Academy of Medical Sciences (FAMS) and Fellow, Third World Academy of Science (TWAS).

Govt to ink MoU with IIT-Delhi to develop air quality monitoring system

January 27, 2020 <http://www.millenniumpost.in/kolkata/govt-to-ink-mou-with-iit-delhi-to-develop-air-quality-monitoring-system-397655>

West Bengal Pollution Control Board (WBPCB) has joined hands with the Indian Institute of Technology (IIT), Delhi to develop an air quality monitoring system.

"We are going to sign a Memorandum of Understanding (MoU) with IIT-Delhi for the project. There will be satellite-based monitoring on air quality soon in the state," said WBPCB Chairman Kalyan Rudra, on the sidelines of a workshop 'Is Air Pollution Shortening Our Lives?' held at Bhawanipur Education Society College on Monday.

Principal secretary of state Environment department P K Mishra and principal scientist and head of National Environmental Engineering Research Institute (NEERI) Dr Deepanjan Majumdar were also present on the occasion.

It might be mentioned that the air quality in the city deteriorated to 'poor' after the Kali Puja, Diwali in 2019. The Air Quality Index (AQI) read 233 (PM 2.5) at air monitoring station of WBPCB at Rabindra Bharati University in north Kolkata the day after. AQI between 201 to 300 mark is categorised as 'poor' and 'very unhealthy' and can cause respiratory problems.

Kolkata generates 1,600 tonnes of construction and demolition (C and D) waste annually. In China and India, where there are much greater levels of pollution, bringing particulate concentrations down to the WHO guideline would increase average life expectancy by 2.9 and 4.3 years, respectively.

The Energy Policy Institute at the University of Chicago (EPIC) has developed a pollution control tool called Air Quality Life Index (AQLI) that tells its users about how much longer would they live if breathed cleaned air. The tool will enable citizens and policymakers to know how particulate pollution is affecting the health of the people.

"The AQLI converts particulate air pollution concentrations into their impact on life expectancy," said Ashirbad Snehdip Raha, senior associate director, communications, EIPC.

Air pollution: IIT-Delhi scientists work on clean air tech with Sharp

January 25, 2020 <https://www.financialexpress.com/lifestyle/science/air-pollution-iit-delhi-scientists-work-on-clean-air-tech-with-sharp/1834318/>

Two IIT Delhi researchers demonstrate that a Sharp patented technology is successful in eliminating harmful particles from environment.



As a result, many types of pollutants were identified, including PAHs, which are known to be toxic to the human body.

Air pollution is a leading health risk factor in India. A dramatic increase in pollution levels (in recent years) in our cities calls for joint efforts to combat this growing health menace. A recent industry-academia collaboration between Japanese technology firm Sharp and Indian Institute of Technology, Delhi, on a new-age technology has thrown up interesting results on how to control air pollution. Sharp, working in collaboration with two IIT Delhi associate professors – Sagnik Dey and Gazala Habib – has demonstrated that Plasmacluster Ion (PCI) has an efficacy to remove PAHs (Polycyclic Aromatic Hydrocarbons), which are contained as toxic air pollutants in Indian cities. This project started in 2018 by measuring the composition of particulate matter in air pollutants in New Delhi NCR region. As a result, many types of pollutants were identified, including PAHs, which are known to be toxic to the human body.

Using the results as a reference, IIT Delhi and Sharp selected three types of PAHs to test the effectiveness of Plasmacluster against these PAHs. The results showed that 91.1% of Fluoranthene, 62.1% of Chrysene, and 94.6% of Dibenzo(a, h)anthracene were effectively removed by applying Plasmacluster. Plasmacluster Ion is an advanced air purification technology from which positive ions ($H + (H_2O)_n$) and negative ions ($O_2^- (H_2O)_m$) are released into the air simultaneously. These positive and negative ions instantly recombine on the surface of pollutants such as bacteria, viruses and chemical compounds floating in the air to form hydroxyl (OH) radicals. Sharp is using the fact that higher ion concentration results in greater efficacy to decompose air pollutants. Sharp envisages the potential application of this technology in other environments such as hospital, office, public area etc.

Gazala Habib commented: "It is expected that usage of PCI technology will lead to the improvement of the indoor air environment and contribution to the healthier life of users around the world."

IIT-D to work with MIT on assistive technology

January 24, 2020 <https://www.biospectrumindia.com/news/68/15633/iit-d-to-work-with-mit-on-assistive-technology.html>

Conducted a two-day exchange program on Assistive Technology



An 8-member team of students from Massachusetts Institute of Technology (MIT) in the US led by their faculty Dr Kyle Keane visited the Indian Institute of Technology (IIT) Delhi for a two-day exchange program on Assistive Technology on 20th and 21st January, 2020. They had joint class with 7 students of IIT Delhi as a part of exchange program.

The MIT-IITD students interacted with students, project staff and entrepreneurs working in the space of assistive technology at IIT Delhi. The students from both the institutes visited Indian Association for the Blind and had discussion with students and special educators to get first hand experience of needs and opportunities in the space of assistive technology.

Three student teams each of which consisting of MIT and IIT Delhi students worked on unmet needs and came up with solutions as a part of joint studio work. All three teams made their presentation pitches to faculty, experts and to other students.

Prof. P.V.M. Rao, coordinator of this programme from IIT Delhi, felt that overall the exchange program was a good experience for students from both the institutes and students had an exciting time working together. Some areas of work for long time collaboration were identified during this exchange program.

Never approached JNU faculty for recruitment citing deteriorating situation, says IIT Delhi

January 19, 2020 <https://www.hindustantimes.com/education/never-approached-jnu-faculty-for-recruitment-citing-deteriorating-situation-says-iit-delhi/story-30Fh4gfKoUOcADwQ5me6AJ.html>

An e-mail purportedly sent by IIT Delhi Director V Ramgopal Rao in December to the institutes' deans suggesting recruitment of Jawaharlal Nehru University (JNU) faculty went viral earlier this week.

The Indian Institute of Technology (IIT) here on Saturday denied approaching JNU faculty members for recruitment citing "deteriorating situation in the university".

An e-mail purportedly sent by IIT-Delhi Director V Ramgopal Rao in December to the institutes' deans suggesting recruitment of Jawaharlal Nehru University (JNU) faculty went viral earlier this week. "There are news items making rounds that IIT-Delhi is actively seeking to recruit faculty from JNU. This narrative is based on an e-mail I am supposed to have sent to heads of departments to encourage them to do so," Rao said in a Facebook post.

"Any sane person would know that there is indeed very little overlap in research areas between JNU and IIT-Delhi. To say that IIT is actively seeking faculty from JNU is far from truth and a distorted way of looking at things," he added. According to the e-mail purportedly sent by Rao on December 19 last year, "I am receiving feelers from senior JNU faculty showing willingness to move to IIT-Delhi considering the deteriorating situation in JNU." "It will be a pity, if we lose out on good talent because of any reason or perception," the said e-mail read. The institute also issued an official statement on Saturday denying the move. "It is to clarify that IIT-Delhi has never approached faculty members of the 'specific' educational institution in the country to join us. Recruitment for all positions is through an open advertisement process," it said.

IIT-Delhi keen on JNU's STEM professors to strengthen roots

January 18, 2020 <https://economictimes.indiatimes.com/industry/services/education/iit-delhi-keen-on-jnus-stem-professors-to-strengthen-roots/printarticle/73346773.cms>

Indian Institute of Technology-Delhi is sending feelers to the faculty at Jawaharlal Nehru University (JNU) who may be looking for options outside the varsity roiled by continuing student protests.

IIT-Delhi believes several distinguished JNU faculty members in STEM (science, technology, engineering and mathematics) subjects would be keen to join the institute.

"There could be a dozen such people at JNU who have won some award in the past and come with rich academic resource, especially in the subjects relevant to IITs," said a senior official familiar with this development. "These could be ideal candidates for the IIT."

The IIT and JNU didn't respond to emails seeking comment until press time Friday.

The official said some JNU faculty members had shown interest in exploring opportunities at the engineering institute because of the continuing student protests on its campus.

There have been no classes at JNU for more than three months now because of the student protest against a fee hike. Some students and teachers' bodies are also demanding the sacking of the vice-chancellor.

Eye on JNU's STEM Faculty

- ▶ **IIT Delhi** is eyeing to hire the faculty talent at JNU
- ▶ **The institute** is looking at tapping into the faculty teaching STEM courses with distinguished track record
- ▶ **This comes** close to the heels of the protests at JNU
- ▶ **None of the IITs** in the country including IIT Delhi are close to the ideal faculty-ratio of 1:10

The current faculty ratio at IIT Delhi is **1:18**

At IIT-Delhi, there are about 630 faculty members for around 11,000 students, according to data from the institute. The faculty-student ratio of 1:18 is nowhere close to the ideal level of 1:10. This ratio is one of the parameters for global ranking of educational institutes.

More than 70% of JNU's faculty members is in the non-STEM streams, such as humanities, arts and social science. The remaining members numbering over 100 are in the STEM stream, a senior JNU faculty member said, speaking on the condition of anonymity.

"There is a process for recruitment at IITs and it usually takes about three to six months and at times even one year ... The institute is targeting all the faculty members who are award winners at JNU and who are teaching experts in STEM subjects," said the same official.

According to earlier media reports, IIT-Delhi director V Ramgopal Rao had written to faculty members in various departments of the IIT to encourage any distinguished JNU faculty members looking for options to consider joining the institute. Rao declined to comment when ET approached him for confirmation and sought details on the mail sent on December 19.

"Some colleagues at JNU have expressed that the current atmosphere in the campus is not ideal for research work," said Ramakrishna Ramaswamy, a visiting faculty at IIT-Delhi's chemistry department who had retired from JNU in 2018.

IIT Delhi shows technology interventions for heritage preservation

January 16, 2020 <https://news.careers360.com/iit-delhi-shows-technology-interventions-for-heritage-preservation>



Minister of Culture and Tourism, Prahlad Singh Patel launched two edited books on Digital Heritage

Students of Indian Institute of Technology Delhi (IIT Delhi) to address the pressing need for preserving cultural heritage digitally have come up with various technology interventions using Augmented & Virtual Reality (AR & VR), 3D printing, AI and IoT.

IIT Delhi along with Department of Science and Technology (DST) is come up with International Heritage Symposium and Exhibition (IHSE) around the frequently articulated need for preserving India's rich cultural heritage digitally, for the future generations.

Ashutosh Sharma, Secretary, DST said: "I have witnessed efforts in the field of digital preservation from last 5 years and this exhibition is a culmination of those efforts. Vizara Technologies, a start-up working in this space has made enormous strides by recreating our cultural heritage using AR, VR, MR and AI technologies etc. We all know that the future is all about the convergence of technology in all aspects of our life and this event is a step towards discussing some of the key issues that challenge us in preserving our heritage. I am of the view that we need to step up efforts significantly."

The event has brought together for the first time in India, communities from such diverse disciplines such as science, technology, culture and social sciences who are engaged in conservation, preservation and management of world heritage in physical and digital space.

IIT Delhi Signs MoU to Promote Research and Development in Quantum Computing

January 15, 2020 <https://www.dqindia.com/iit-delhi-signs-mou-promote-research-development-quantum-computing/>

IIT Delhi is creating a chair to promote excellence and leadership in teaching and Research & Development in the area of Quantum Computing

The Indian Institute of Technology Delhi (IIT Delhi) has signed a Memorandum of Understanding (MoU) with its 1995 batch alumnus Prashant Gupta to create the Uma-Puruskar-Liril Gupta Chair in Future Computing Technologies at the institute. The focus areas of the chair would be Quantum Computing and High-Performance Computing, says the IIT Delhi website.

The chair has been created to promote excellence and leadership in teaching and Research & Development in the area of Quantum Computing and High-Performance Computing with primary emphasis given to Quantum Computing, which is an exciting field that promises to revolutionise computing in the future.

Prashant Gupta, who has donated Rs 1 Crore to his alma mater to fund the endowment to establish the chair, said: "My IIT Delhi stint was life-changing, and this is a small token of my gratitude for the institute as well as members of my family who helped me extraordinarily in my formative years. I hope this contribution helps IIT Delhi make rapid progress in the area of Quantum Computing."

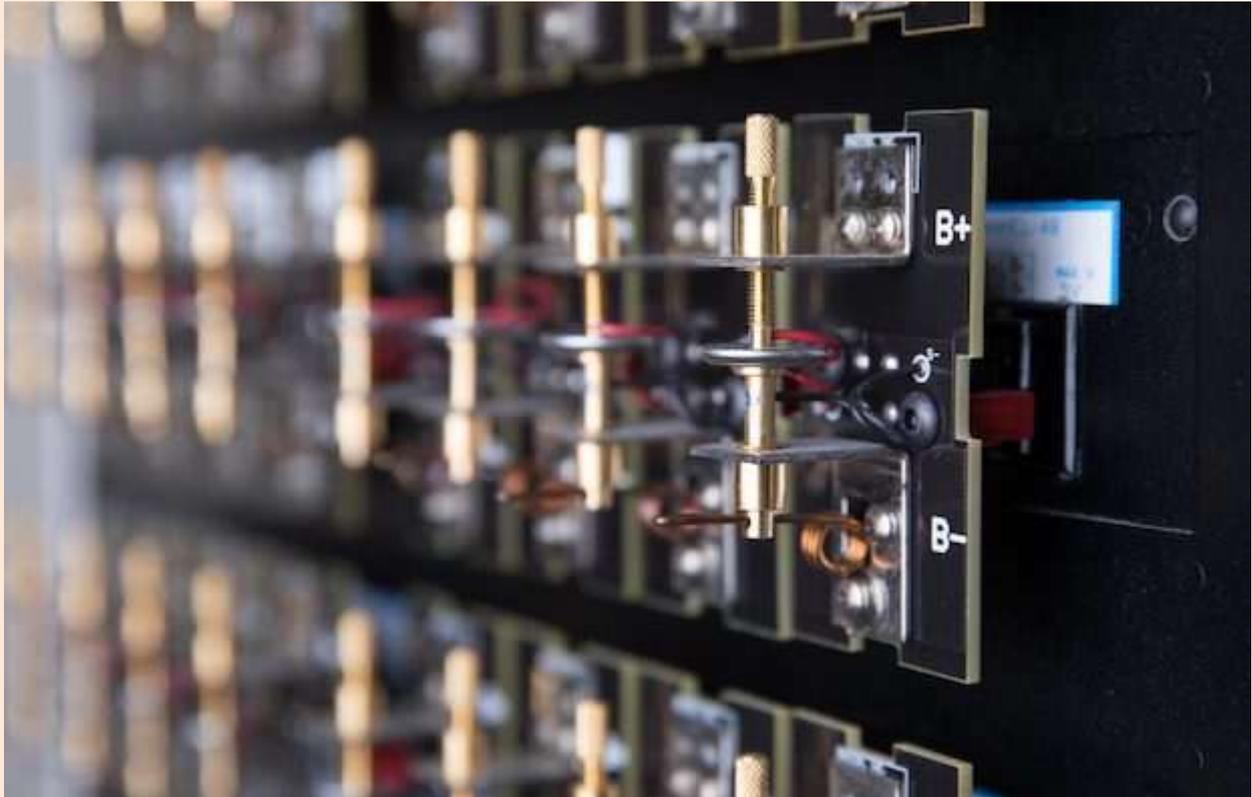
Quantum computing, which is the study of a non-classical model of computation, is still in its nascent stages in India. The primary selection criteria for the chair will be an excellent research profile in the area of Quantum Computing. The institute is looking for a person who can bootstrap the Indian ecosystem around this very important area of research, says IIT Delhi.

Prof V Ramgopal Rao, Director, IIT Delhi said: "IIT Delhi strongly encourages alumni involvement in institute activities. We have created multiple mechanisms for alumni to get engaged with the institute. Support for creation of Chair positions in niche areas is one of them. We are happy that alumni are taking interest in this activity. We have over 50 Chair faculty positions at IIT Delhi right now supported from various sources."

Okaya Partners With IIT Delhi for "VRFB" Battery Research

January 13, 2020 <https://www.saurenergy.com/ev-storage/okaya-partners-iit-delhi-vrfb-battery-research>

Okaya Power Group has announced that it has associated with IIT Delhi as an Industry Partner for a Vanadium Redox Flow Battery (VRFB) research project.



Okaya Power Group (OPG), a leading battery and power backup products manufacturing company has announced that it has associated with IIT Delhi, the country's premier institution of engineering and technology for Vanadium Redox Flow Battery (VRFB) research project.

Okaya Power is the Industry Partner of this project of IIT Delhi funded by the Department of Science and Technology, Government of India.

The VRFB research project is aimed at developing small and medium scale energy storage devices which can play a pivotal role in meeting the future energy demands of the country. The scientists in IIT Delhi are involved in the design and development of VRFB, while the engineers in OKAYA are working on battery management system developed for this project. The project will altogether address the design of a one-of-a-kind battery pack exactly in-line with the requirement for home light systems specified by the Indian Renewable Energy Development Agency (IREDA) for Pradhan Mantri Sahaj Bijli Har Ghar Yojana – 'Saubhagya'.

Anshul Gupta, director, Okaya Power said that determined to remain at the forefront of every technological innovation in the energy storage system, Okaya takes pride in associating with IIT Delhi for the VRFB research project.

"We expect our association with IIT Delhi will go a long way towards promoting the use of clean and green energy. Keeping in view the vast energy needs of a large country like India, we intend to harness the alternative energy resources like solar and wind energy to contribute our bit in achieving the goal of energy independence of the country," he said.

The firm also stated that it is committed to aiding the government's efforts to enhance the country's renewable energy capacity to 175 GW by the year 2022, which includes 100 GW from solar

power. Okaya is already engaged in augmenting solar energy storage technology to facilitate the mass use of solar energy.

Anil Verma from the Department of Chemical Engineering and PI of the project added, “It is considered that VRFB would be a competent device to store renewable energy in the MW scale.

“However, in the Indian scenario, where we need to serve a large number of isolated pockets of population, small and medium energy storage and utilisation are more important. VRFB combines a battery’s efficiency and fuel cell’s independent energy storage capacity and works by moving an electrolyte containing suitable vanadium ion through VRFB that converts chemical energy to electrical energy and vice-versa.

CSC to partner IIT Delhi to empower rural students

January 11, 2020 <https://www.deccanherald.com/national/csc-to-partner-iit-delhi-to-empower-rural-students-793649.html>

Aimed at empowering rural students with access to quality education, Common Services Centre (CSC) has partnered with Japanese technology giant NEC Corporation and IIT Delhi.

Beginning this endeavour, CSC, NEC Corporation and IIT Delhi jointly organized a hackathon on “Digitalising rural education” on Saturday.

In the hackathon, 30 teams selected from all over the country participated in brainstorming sessions organised to develop ideas to simplify education delivery to students living in rural India. Both CSC and NEC Corporation will jointly design and develop tools and products for rural students.

“CSC’s presence in every gram panchayat will help students to have access to these tools. In addition, CSC has also opened 6000 educational academies in every development block, that aims to solve basic problems in education like the language barrier, dropout ratio etc,” CSC Chief Executive Officer Dinesh Tyagi said.

GATE 2020: IIT Delhi Likely to Release Admit Card Today at gate.iitd.ac.in

January 3, 2020 <https://www.news18.com/news/india/gate-2020-iit-delhi-likely-to-release-admit-card-today-at-gate-iitd-ac-in-details-2443957.html>

The exam conducting authority Indian Institute of Technology Delhi will release Graduate Aptitude Test in Engineering (GATE) 2020 admit card on its official website at gate.iitd.ac.in.

Representative image

GATE 2020 | The Indian Institute of Technology (IIT) Delhi will release GATE 2020 Admit Card on January 3. The exam conducting authority Indian Institute of Technology Delhi will release Graduate Aptitude Test in Engineering (GATE) 2020 admit card on its official website gate.iitd.ac.in. Candidates, who are preparing for the examination, can visit the official website to download their

admit card once released. Candidates will need to their registration number and password for downloading GATE 2020 Admit Card.

IIT-Delhi will conduct the GATE examination in eight sessions. The examination will take place on February 1, 2, 8 and 9, 2020.

GATE 2020 Admit Card: Steps to check the score

Step 1: Visit the official website at gate.iitd.ac.in

Step 2: Look for GATE 2020 Admit Card link and click on it

Step 3: Enter registration number and password

Step 4: Download Graduate Aptitude Test in Engineering (GATE) Admit Card 2020 and keep a printout for future use

This year, as many as 8.6 lakh candidates have applied for the GATE 2020 examination. As per the schedule released by the IIT-Delhi, the GATE 2020 Examination for Civil Engineering and Mechanical Engineering papers will be held in two sessions each. The other 23 papers will be held in single session, in eight different sessions.

The exam is conducted jointly by the Indian Institute of Science (IISc), Bangalore and the seven Indian Institutes of Technology (at Bombay, Delhi, Guwahati, Kanpur, Kharagpur, Madras, and Roorkee).

Researcher at IIT-Delhi develops low-cost 'fabric feel tester'

January 2, 2020 <https://timesofindia.indiatimes.com/home/science/researcher-at-iit-delhi-develops-low-cost-fabric-feel-tester/articleshow/73069594.cms>

A researcher at the Indian Institute of Technology (IIT) here has developed a "fabric feel tester" at a cost nearly 100 times cheaper than the ones presently available in market.

According to officials, a patent has also been filed for the instrument which has been developed by professor Apurba Das and his team with support from the government's department of science and technology.

The instrument measures the subjective fabric feel perception and expresses it by an objective numerical value.

Fabric feel is a generic term for textile sensations associated with fabrics.

"The existing Kawabata Evaluation System of Fabrics (KESF) system used in the clothing industry is very complex and requires four different modules. The new instrument will not only measure fabric softness and feel directly but also help in selecting the optimum fabric finish treatment by comparing the feel," a senior IIT-Delhi official said.

"The instrument will help check change in fabric feel after chemical or mechanical treatment and

thus help in developing newer fabrics and finishings with better feel. The cost of the new fabric feel tester is around Rs 1.75 lakhs as compared to the cost of complete KESF equipment which is more than Rs 1.5 crore," the official added.

According to the official, the device finds its usage broadly in dyeing and finishing in textile and apparel industries, weaving industries, garment manufacturing units and testing laboratories.

"It will be helpful for industries who are dealing with the production, evaluation and application of textile fabrics for process, quality and quick decision making," the official said.

IT Delhi researchers develop small, medium scale energy storage device

January 1, 2020 <https://timesofindia.indiatimes.com/home/science/iit-delhi-researchers-develop-small-medium-scale-energy-storage-device/articleshow/73046552.cms>

Researchers at the Indian Institute of Technology (IIT) here have produced a small and medium scale energy storage device.

According to the team at IIT Delhi, various energy storage options are available currently with associated advantages and disadvantages depending upon geographical location and need.

"One of the storage options that is currently showing significant potential is the vanadium redox flow battery (VRFB). It has some unique characteristics of independent power and energy capacity tunability, complete discharge without damage, and easy replacement of liquid electrolyte having active ingredient," said Anil Verma, department of chemical engineering, IIT Delhi.

"It is considered that VRFB would be a competent device to store renewable energy. However, in the Indian scenario, where we need to serve a large number of isolated pockets of population, small and medium energy storage and utilization is more important. VRFB combines a battery's efficiency and fuel cell's independent energy storage capacity and works by moving an electrolyte containing suitable vanadium ion through VRFB that converts chemical energy to electrical energy and vice-versa," he added.

The project will address design of the battery pack, which will be in-line with the requirement for home light systems given by the Indian Renewable Energy Development Agency (IREDA).