MONTHLY NEWS CLIPS

1-31 August, 2019

IIT-Delhi get Rs 125 crore fund to set up research centre SATHI

August 31, 2019 https://www.theindianwire.com/education/iit-delhi-get-rs-125-crore-fund-set-research-centre-sathi-168184/

The Department of Science and Technology (DST) has decided to set up a professionally-managed infrastructure facility called Sophisticated Analytical and Technical Help Institute (SATHI) at Indian Institute of Technology Delhi (IIT-D).

The Centre SATHI can be used by academia, start-ups, manufacturing units, industries and R&D labs.

IIT-Delhi will be provided with a fund of Rs 125 crore in the next three financial years starting from 2019-2020 to set-up SATHI.

It will be set up in the Sonepat campus of IIT Delhi which is situated at Haryana and it will be equipped with a major analytical instrument and advanced manufacturing tools which are usually not available at institutes or organizations.

"SATHI is much more than a sophisticated equipment centre as IIT Delhi faculty and researchers will assist the students, scientists and entrepreneurs in solving the scientific and technological problems/ difficulties being faced by them
", said by Prof B.R. Mehta, Dean, R&D, IIT Delhi.

"In addition to the facilities being created as part of SATHI, IIT Delhi has also made a commitment to DST to make available other high-end research facilities available in the institute as part of this project," said by V Ramgopal Rao, Director, IIT-Delhi.

Grammy-winning artistes launch kindness anthem at IIT-Delhi

August 28, 2019 https://timesofindia.indiatimes.com/city/delhi/grammy-winning-artistes-launch-kindness-anthem-at-iit-delhi/articleshow/70858922.cms

Even with exams around the corner, hundreds of college students from across the city gathered at the Indian Institute of Technology Delhi's (IIT-D) auditorium to attend a concert that boasted of an ensemble of two Grammy award-winning musicians along with several international artistes. The #KindnessConcert, which concluded the three-day long World Youth Conference on Kindness, saw the world premiere of a special anthem on kindness, titled Shine Your Light, by Ricky Kej ft Lonnie Park. "The idea of this song is to empower each and every one to make a change through simple acts of kindness. The biggest threat for us is thinking that somebody else will make a difference," said Ricky, adding, "Coexistence is not just about living in harmony with people of different races. We seem to have forgotten that we're not the only species on this planet, but there are millions of cohabitants, too."

Grammy award-winning artiste Laura Dickinson at the concert

The conference, inaugurated by President Ram Nath Kovind, was organised by the UNESCO Mahatma Gandhi Institute of Education for Peace and Sustainable Development (MGIEP), and had delegates from around the world. While talking about the concert, Sandra Ajaja, a youth delegate from Nigeria, told us, "This concert was an amazing way to wrap up a conference that taught us about evolving into a species that is kinder to one another. Their music was powerful and it hit home with me." Vasudha, a student at IIT-D, said, "I have an exam tomorrow, but I didn't think twice before coming here. Whether we are music enthusiasts or not, the whole concept of this concert was unique and I couldn't have missed it."

IP Singh, lead vocalist of the band Faridkot

The lineup included Grammy award-winning musicians Ricky Kej and Laura Dickinson, along with Brennon Denfer, Manoj George, Fateh Ali Khan, Murad Ali Khan, IP Singh and Manjunath, who came together for a show that transcended language and evoked environmental consciousness. "Music is one language that all of us can speak. I met half of our band today but the moment I walked on to the stage, we all knew what we wanted and we just did it," said Laura at the gig.

Anantha Duraiappah, Director, UNESCO MGIEP

While the artistes sang, the imagery on the screen behind them segued from issues such as threat to the Ganges to the human-elephant conflict. With clippings from Kiribati Islands – a remote and low-

lying nation in the Pacific Ocean which is under threat of being submerged due to rising sea levels – in the backdrop, IP Singh, the lead vocalist of the band Faridkot, crooned a Punjabi track and kept the audience engaged. After a slew of upbeat performances, Ricky announced the world premiere of the kindness anthem and the entire ensemble broke into a medley. The auditorium turned into a sea of lit cell phones, with the audience turning into backup singers, singing along with the artistes. Anantha Duraiappah, Director, UNESCO MGIEP said, "In light of the recent focus on happiness and well-being in global education systems, it is only natural that music and youth-led campaigns on kindness go hand-in-hand. There isn't a better way to conclude a kindness conference than with music."

The audience at the concert turned on the flashlight on their cellphones and sang along with the artistes

Speed painter creates a portrait of Gandhi

The audience was taken by surprise when world-renowned speed painter Vilas Nayak took to the

stage at the #KindnessConcert and painted a mural of Mahatma Gandhi within a span of minutes, in sync with instrumental music.

IIT-Delhi establishes waste-to-wealth centre
August 26, 2019 https://www.thehindu.com/news/cities/Delhi/iit-delhi-establisheswaste-to-wealth-centre/article29255342.ece

It aims to remove debris from drains

With an objective to remove floating debris from drains like Babarpur, Barapullah and other waterbodies in the Capital and generate resource from the mixed waste feedstock collected, the Indian Institute of Technology has entered into a partnership with Denmark-based firm to start DESMI Centre of Excellence on Waste-to-Wealth at IIT-Delhi.

The centre was set up under the guidance of the office of the Principal Scientific Advisor (PSA), Government of India. Commenting on the need for such a centre, PSA K.VijayRaghavan, said: "We urgently need to clean our waterways which feed into our rivers and oceans. Simultaneously, we need to change our attitudes so that we own our commons and not orphan them. This Centre of Excellence will deeply connect the best of national and international science to address the most pressing environmental challenges of our age."

V. Ramgopal Rao, IIT-Delhi Director, said the idea of the centre was to use the waste that is being generated from big cities and see how that can be converted into wealth. "This will in a way help us connect with the real problems in the society. And as a technology institute we will be able to provide solution to some of these problems," Mr. Rao said.

IIT-Delhi said that the centre will provide support for implementing framework of pilot projects, which address waste collection and management with possible energy generation.

Removal of floating solid wastes for maintaining cleanliness and automated/energy-efficient collection of waste from waterbodies with smart and cost-effective segregation of solid-wastes based on post-processing methodologies will be a pilot project of the centre, the institute said.

From team of AIIMS, IIT-Delhi, special stethoscope to help students and teachers
August 25, 2019 https://indianexpress.com/article/cities/delhi/from-team-of-aiims-iit-delhi-special-stethoscope-to-help-students-and-teachers-5934558/

The device, which can be attached to a normal stethoscope, is in the testing phase and will soon be available in the market for less than Rs 10,000.

A group of MBBS students from AIIMS, in collaboration with IIT-Delhi, has developed a unique broadcasting stethoscope to help students learn the auscultation technique — listening to sounds from the heart, lungs and other organs for diagnosis — and assist faculty in mass teaching.

"While teaching, the patient faces discomfort if students use the stethoscope one by one, to understand the variation in sounds. But with the broadcast stethoscope, we can teach 10-15

students at once, allowing them space to discuss the interpretation of the sounds. This is an innovative approach which makes it easier for patients and students to study auscultation. It is surprising that no one thought of it earlier," said Dr Vineet Ahuja, associate dean, research, AIIMS.

The device, which can be attached to a normal stethoscope, is in the testing phase and will soon be available in the market for less than Rs 10,000.

Talking about the need for such an innovation, Tamoghna Ghosh, one of the AIIMS students behind the innovation, said, "In a cardiology class, only one student can listen to the heartbeat at a time using the normal stethoscope… It takes time. This device will change it."

Dr Rajeev Kumar, associate dean, academics, AIIMS, said, "Whenever the doctor wishes to transmit the sound, he/she can attach the device to his stethoscope…" Students from AIIMS spent four weeks at IIT-Delhi as part of an exchange programme, working with engineering students and teachers, to develop the device. In a first, AIIMS has initiated an exchange programme with three other universities — Institute of Genomics and Integrative Biology, Delhi (IGIB); University College, London and University of Cologne, Germany.

Officials said this was the first time that a structured programme has been started by the institute. "Students have been sent to five different places for innovation and training programmes. A curriculum was drawn up for the purpose," said Kumar. "This will continue in the coming year too. For the first time in an exchange programme, our students came up with this innovation," he added.

Reusable sanitary pads, with lifespan of 2 years, launched by IIT Delhi startup Sanfe

August 20, 2019 https://zeenews.india.com/science-environment/reusable-sanitary-pads-with-lifespan-of-2-years-launched-by-iit-delhi-startup-sanfe-2228612.html

These pads can last upto two years or around 120 washes after washing them in cold water with detergent after every use. A pack of two pads is priced at Rs 199.

Over the last couple of decades, women's sanitary products have undergone a massive revolution – from homemade pads and cloth rags to modern day napkins and tampons. The range of menstrual products is still evolving with environment friendly, biodegradable and reusable products joining the wagon.

Latest to enter this segment are Indian Institute of Technology (IIT) Delhi-incubated startup Sanfe, which claims to have designed first reusable sanitary pads, made with composite banana fiber.

These pads can last upto two years or around 120 washes after washing them in cold water with detergent after every use. A pack of two pads is priced at Rs 199.

The Sanfe Reusable Pad has been developed by founders BTech students Archit Agarwal and Harry Sehrawat, based on inputs from several institute professors.

"The reusable pads are ultra-thin and are highly absorbent with Quadrant True Lock Technology which makes the pad leakproof and avoids creating any rashes. A patent has also been filed for the design," said a release.

Explaining the technology behind it, **the reusable sanitary pad is made up of four layers of different fabrics:**

1. Polyester Pilling - This fabric is highly wicking and doesn't absorb the fluid, giving a dry experience throughout the day time.
2. Terry and Banana Fibers including viscose and Polyester Fibers - This part is highly absorbent, soaking and absorbing all the fluids making napkins highly absorbent.
3. Cotton Polyurethane Laminate - This is a breathable layer with water resistant properties giving leak-proof experience.

The company aims to address the increasing problem of plastic waste generated in society created due to disposable sanitary pads.

"According to Menstrual Hygiene Alliance of India (MHAI) there are almost 336 million menstruating women in India, of which 36% use disposable sanitary pads summing up to 121 million. India has approximately 12.3 billion disposable sanitary napkins to be taken care of every year, and a majority of these are non-biodegradable. Most of these sanitary napkins are made of synthetic materials and plastic, which can take more than 50-60 years to decompose. This enormous amount of menstrual waste is usually dumped in landfills, thrown in open spaces and water bodies, burnt, buried (shallow burial) or flushed down toilets. These disposal techniques create a hazard for the environment. For instance, burning releases carcinogenic fumes in the form of dioxins creating an air pollution hazard, putting this waste in landfills only adds to the burden of waste, and so on," said the company.

The use of reusable pads has already been introduced in African Countries by government bodies, NGOs and UN which distributed the reusable pads to school girls under sustainable menstrual hygiene.

#IBleedGreen Movement

 "Due to the taboo around it, women hygiene has been neglected in thought and talk. With our innovations in women hygiene, we want to empower women and make their life simpler. Even for women welfare, Government and NGOs regularly distribute subsidized disposable sanitary napkins in rural and semi urban areas which is a huge cost and harm to environment accounting only for a short term solution. We urge these organizations to switch to Reusable Pads under #IBleedGreen movement and can save upto 75% of the cost," said Aggarwal.

Interested users can visit reusablepads.org to find out more.

Sanfe, a feminine hygiene brand and women empowerment company, was founded by two Agarwal and Sehrawat while they were in their second year. The journey started during a trip to the mountains when one of their friends contracted a Urinary Tract Infection (UTI) after using dirty public washroom. It was only then they realised that this is a problem faced by over 50 percent of women in India.

The company has developed Sanfe Stand and Pee, and Sanfe Period Pain Relief Roll On. The Stand & Pee product allows women to stand and urinate, and thereby, prevent physical contact with unhygienic toilet seats and reduce the chances of contracting UTIs. The Period Pain Relief Roll On is a natural product to relieve women from menstrual cramps without creating any side effects.

IIT-Delhi faces hostel crunch, partners with OYO to provide off-campus accommodation

August 20, 2019 https://indianexpress.com/article/education/iit-delhi-faces-hostel-crunch-partners-with-oyo-to-provide-off-campus-students-accommodation-5885777/

Around 50 girls have been enrolled in supernumerary female-only quota, 100 students have enrolled in the undergraduate courses in the EWS quota. Additionally, the IIT-Delhi is also increasing its PhD students enrollment as a part of its Institute of Eminence status tag.

The Indian Institute of Technology (IIT), Delhi has collaborated with space aggregators, including the budget lodging platform OYO, to accommodate the increased number of students enrolled in the institute this year. With supernumerary seats for women, additional seats for foreign nationals in PhDs and newly introduced Economically Weaker Section (EWS) quota, the IIT-Delhi has enrolled over 500 students in excess of its capacity.

 "We were already facing a hostel crunch for which we have decided to set up two new hostels — one for males and the other for female students. While the construction for both hostels will be complete next summer, we will still be unable to accommodate all the students on campus. The number of admissions has been increasing every year," said M Balakrishnan, deputy director, IIT-Delhi.

Around 50 girls have been enrolled in supernumerary female-only quota, 100 students have enrolled in the undergraduate courses in the EWS quota. Additionally, the institute is also increasing its PhD students enrollment as a part of its Institute of Eminence status tag. Of the 200 PhD students at IIT-Delhi, 30 per cent are in from EWS category, informed the deputy director.

To accommodate the exponential increase, the institute is making 'makeshift' arrangements. "We have arranged out-of-campus accommodation for 550 boys in nearby areas. The female students have been accommodated inside the campus by utilising empty staff apartments, guest houses, etc," explained Balakrishnan, adding, "This, however, is a temporary arrangement. We are looking for more permanent solutions."

Due to its proximity (about 10km) to the Indira Gandhi International Airport, IIT-Delhi also faces limitations in terms of raising the space vertically. The institute has collaborated with many space aggregators to provide accommodation for students in the vicinity, such as OYO and Airbnb. The additional cost for off-campus accommodation is borne by the institute.

The IIT is not the only one facing cash and hostel-crunch, recently the Jawaharlal Nehru University (JNU) has also converted its common spaces into dormitories to accommodate students. Complaints regarding the cleanliness of hostels, lockers being provided instead of almirahs and cramping of as many as 10 students in one hall without a cooler have emerged from the varsity.

IIT Delhi Alumnus Develops App for Visually-Impaired, Wins National Disability Award

August 16, 2019 https://www.ndtv.com/education/iit-delhi-alumnus-develops-app-for-visually-impaired-wins-national-disability-award-2085995

IIT Delhi alumnus Ankita Gulati won the National Disability Award for Working Professionals for her device called TouchVision.

IIT Delhi alumnus wins National Disability Award for developing app for visually-impaired

IIT Delhi alumnus Ankita Gulati won the National Disability Award for Working Professionals for her device called TouchVision. The device narrates the content in the picture when a visually-impaired person touches it.

Ms. Rama Devi, Deputy Speaker of the Lok Sabha, presided over the 10th edition of the NCPEDP-Mphasis Universal Design Awardswhich was held on August 14 at India International Centre in New Delhi.

A national award-winning scientist, Ankita chose assistive technology for her master's thesis, which gave her the base to build this product.

Describing her innovation, Ankita says, "a foldable stand is used to position a smartphone camera for scanning tactile material and pointer ring on user's index finger is used to read the text. The smartphone through an app provides simultaneous audio to the user as per index finger's location. Label and description of the diagrams are narrated based on different finger gestures performed by the user."

Arman Ali, Executive Director of NCPEDP addressed the gathering at the award ceremony and said, "Without accessibility, inclusion is impossible. Some of the ideas that have won this year are so futuristic that it gives us hope. We need to take the message to smaller towns and districts that accessibility is beyond just building a ramp.

Addressing the audience, Ms. Rama Devi said that it was necessary to change the paradigm and make sure that Persons with Disability have access to independence and livelihoods.

Nipun OS, AVP Corp Social Responsibility of Mphasis added "we must scale up the innovations that have emerged today so that a large number of persons with disabilities can benefit."

A total of 14 awards were given away.

Persons with disability awards were given away to Aneesh Karma of BETiC IIT Bombay, Nekram Upadhyay from New Delhi and Rajesh Ketkar from Vadodara,Gujarat.

Awards for working professionals were given away to Rajni Kant Singh of LEPRA Society-Bihar, Prashant Gade of Inali Foundation- Madhya Pradesh Kunal Prasaad of the XL Cinema Mumbai and Ankita Gulati of IIT Delhi.

Awards for corporations were given to Bleetech Pvt Ltd (Mumbai, Maharashtra), SM Learning Skills Academy for Special Needs Private Limited (Gurgaon,Haryana), National Institute of Open Schooling (Noida), Big Bazaar- Future Retail (Mumbai,Maharashtra)and Robert Bosch Engineering and Business Solutions Private Limited, (Bengaluru, Karnataka).

The Javed Abidi Public Policy Award was given to Ms. Smitha Santhakumari Sadasivan who has been consulting with Election Commission of India on accessible electoral process for all citizens with disabilities, collaborating with Public Works Department (PWD) etc.

A special Jury Award was given to the Ministry of Information and Broadcasting, for its pioneering work in making television accessible to people with hearing disability.

IIT-D director receives ACCS science award

August 14, 2019 https://www.thehindubusinessline.com/news/education/iit-d-director-receives-accs-science-award/article29094037.ece
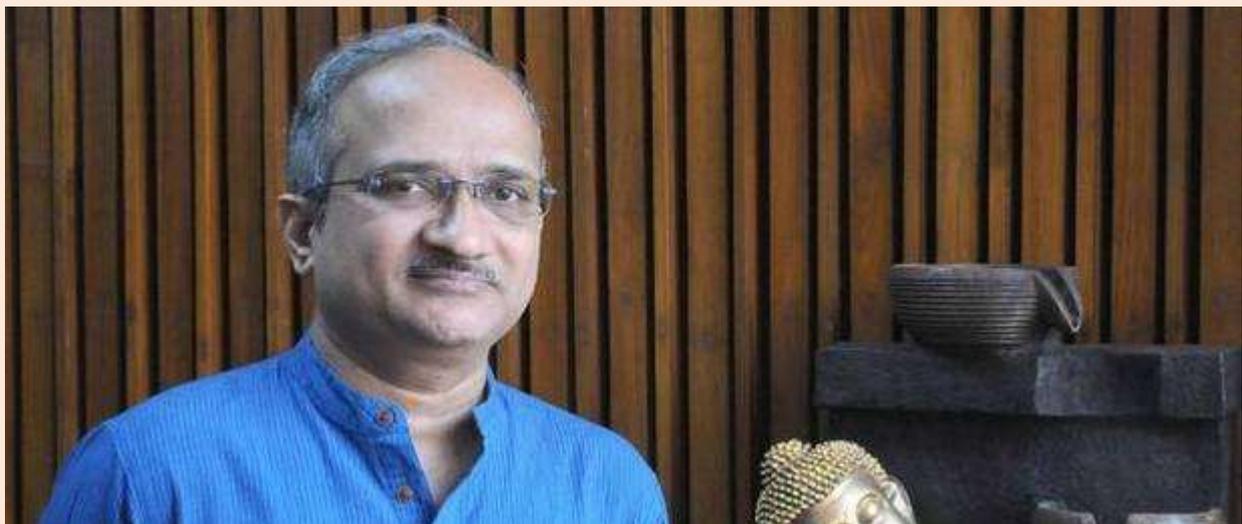
Ramgopal Rao, Director, IIT Delhi.

Advanced Computing and Communications Society has selected Ramgopal Rao, Director, IIT Delhi, for the prestigious ACCS-CDAC Foundation Award 2019 in recognition for his work on the science and engineering of nano-scale electronic devices that had a significant industrial impact.

The award carries a cash prize of ⃞1 lakh and a citation.

The award will be presented at the annual Advanced Computing and Communications Conference (ADCOM 2019) at the International Institute of Information Technology, Bangalore (IIITB) on September 6.

Rao has over 450 publications in various journals, and 43 patents in the areas of electron devices and nano electronics.

The ADCOM is the flagship event of the Society.

IIT-D, AIIMS conduct workshop on biodesign and innovation
August 13, 2019 https://biospectrumindia.com/news/68/14440/iit-d-aiims-conduct-workshop-on-biodesign-and-innovation.html
Clinical immersion, problem identification, creation of prototype, options of solutions and choice of solutions were some of the components of the workshop

A month-long workshop on biodesign and innovation jointly conducted by IIT Delhi and AIIMS has developed several protyptes that can open new vistas in the medical domain.

Besides faculty from the two institutions, the workshop, that concluded recently had mentors from School of International Biodesign, AIIMS, New Delhi. It brought together 15 students from IIT Delhi and 15 MBBS students from AIIMS on a common platform to identify important health care needs and invent technologies to address them.

"The goal of the workshop was essentially to produce a prototype of an innovative medical device. This workshop was also designed to give insights into what innovators have to go through, to come out with viable business products," says Neetu Singh, coordinator of the workshop.

As many as 15 students from IITDelhi and 15 from the 3rd year MBBS program at AIIMS were selected for the workshop. The students worked in teams and identified the needs by extensive

immersion process such as visiting AIIMS OPDs, meeting with various stakeholders and discussions with IIT faculty.

"I got to know about various areas, which one goes through while designing a product/ service- how market works, design (prototype), business (elevator pitch, lean canvas)," Arti Yadav one of the participants says.

Dittos Mudit Agarwal. "The best part about this workshop was the contacts and connections I built in IIT Delhi. It helped me delve into various areas of designing."

"This workshop has given me insights into what innovators have to go through to come out with viable business products," maintains Keerthi Sagar.

Clinical immersion, problem identification, creation of prototype, options of solutions and choice of solutions were some of the components of the workshop.

The prototypes that were developed during the workshop included-- device for controlling Obstructive Sleep Apnea, a novel video-laryngoscope for reduced mouth opening, method for continuous measurement of ICP through a non-invasive way, method to reduce inter observer variability in jugular venous pressure measurement and a Broadcasting Stethoscope that can help in medical teaching.

The workshop was conducted by Prof. PVM Rao, Prof. Neetu Singh and Dr. Avijit Bansal (School of International Biodesign, AIIMS).

IIT-Delhi conference for bringing tech to the marginalised
August 11, 2019 https://timesofindia.indiatimes.com/city/delhi/iit-conference-for-bringing-tech-to-the-marginalised/articleshow/70624641.cms
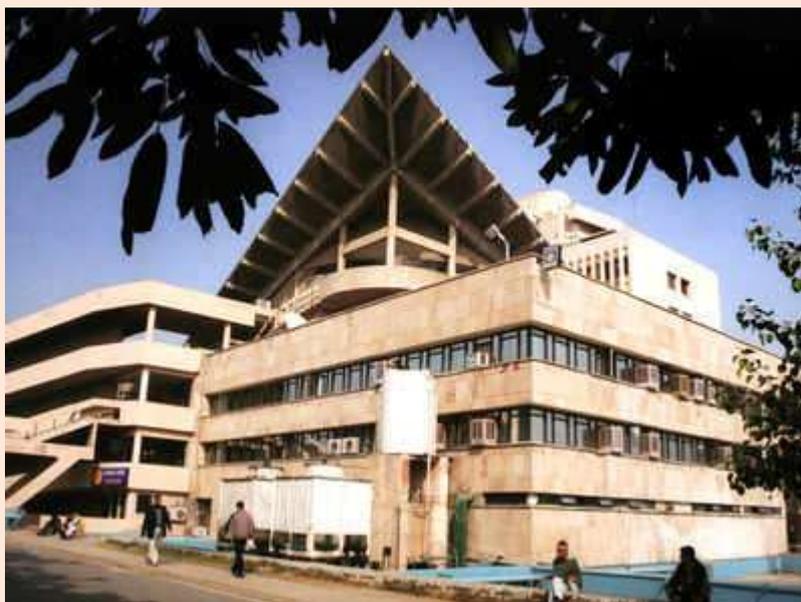
A three-day national workshop connecting technology to community was inaugurated at IIT-Delhi on Saturday.

The workshop brings together the technology developer, user and provider on the same platform with a focus on marginalised community. On this occasion an exhibition has also been organised, which is showcasing exhibits ranging from edible plates to organic soap.

Tech4Seva workshop, hosted by IIT-Delhi in collaboration with Vijnana Bharti, was inaugurated by Ashutosh Sharma, secretary, department of science and technology and R Subrahmanyam, secretary, ministry of human resource development. Sharma emphasised on connecting technology with society through the workshop. He suggested that it is the responsibility of the researchers to popularise science by addressing the societal problems through simple scientific writing. He also appealed to the scientific community to use Tech4Seva as a platform for scientific social responsibility, while thanking the ministry of human resource development for getting into this neglected domain and engaging higher educational institutions with community.

Subrahmanyam addressed the audience by stating "Science that does not think of society is useless and the society that does not think of science can never progress." He encouraged the audience to apply traditional knowledge and advanced concepts to solve problems of India. He said that the progress of India will happen only with innovations backed by cognitive ability, spirit of enquiry and research and development in right direction.

Prof Vivek Kumar, Centre for Rural Development and Technology, IIT-Delhi, briefed about the Unnat Bharat Abhiyan, a flagship programme of MHRD and how UBA and Vijnana Bharti have come together to host this workshop on the following six themes — agriculture, livelihood, sustainable energy, swasth bharat, environment and school education.

IIT-Delhi students design world's first self-standing crutch
August 11, 2019 https://indianexpress.com/article/education/flexmotiv-worlds-first-self-standing-crutch-designed-by-iit-delhi-alumni-5892807/

Flexmotiv is likely to be available on all the E-commerce platforms before August 15, 2019 at a price of Rs 2,999. Shaped like a foot it allows people to stand on their own and even trek or walk on a slippery surface with ease.

The alumni from the Indian Institute of Technology (IIT), Delhi have created the world's first automotive crutches which have the capacity to stand on their own. The product which will be available in the market by the end of August is expected to solve problems of people with locomotive disabilities and the elderly. The crutches unlike, the traditional model, can be used in any terrain – even as support while trekking, as per the IITians who have created them.

Arvind SA, the co-founder of Flexmotiv said, "It is the world's first self-standing axillary crutch. At an initial stage of using the crutch, there is always a requirement of support, but Flexmotiv is designed in a way that can be used without taking any support."

"The traditional crutches have a rubber toe at the end, which makes very difficult for the users to move it in the muddy field, or the snow trapped terrain as there is a possibility of the crutch to get

stuck in the mud or getting slipped in the snow terrain. But the Flexmotiv is designed in the shape of a leg and the end part of the crutch has the shape of toe and heel," said Arvind.

"The device is designed in a way that it improves the surface adaptability thus reducing the jarring forces from 5 to 10 per cent while walking and improves the user performance by 10 to 20 per cent," he adds. It is likely to be available on all the E-commerce platforms before August 15, 2019 at a price of Rs 2,999.

The crutch took two years to develop, said Arvind, adding that it was an accident of a friend that pushed them to develop 'Flexmotiv'.

"One of our friend Tarun broke his ankle while playing Basketball match in (IIT-Delhi) campus. His struggle and pain moved us to make equipment for the cause of divyangjan- persons with disabilities," said the 29-year-old IIT-Delhi alumnus.

According to Arvind, apart from the disabled person, the product can be used by the patients having spinal cord injury, fracture and arthroplasty of Knee and hips joints.

Flexmotiv is now available at the company's website – flexmotiv.com. "Before making it available in the market, we want to scrutinise the requirement of the people so that we can better our products. The product will be available at the e-commerce websites including Amazon, Flipkart by the end of August," said the co-founder Arvind SA.

 "We are trying it to make it available in Amazon before August 15," said Arvind SA.

The startup Flexmotiv is headed by the students of IIT-Delhi Arvind SA, Adepu Srinivas, Girish Yadav. The company is based in Delhi with a work-force of 10 people.

IIT-Delhi to launch part-time courses in sensor, cyber physical engineering
August 07, 2019 https://indianexpress.com/article/education/iit-delhi-to-launch-part-time-courses-in-sensor-cyber-physical-engineering-5882874/

With an aim to expand its outreach programme, IIT-Delhi will also provide certificate-level courses that are claimed to be 'industry-relevant'.

The Indian Institute of Technology (IIT) Delhi will launch several programmes for working professionals as well as engineering aspirants. The courses will be provided in part-time mode and classes will be held on weekends. Under the initiative, the existing MTech in instrument technology will be available in part-time mode and new courses including Master of Science Research (MSR) will be launched in both full-time and part-time modes.

With an aim to expand its outreach programme, the institute will also provide certificate-level courses that are claimed to be 'industry-relevant'. These would include subjects such as AI, a framework for sensor networks, instrumentational engineering, cyber-physical system engineering, among others. The courses are being provided by the Centre for Sensors, Instrumentation and Cyber-Physical System Engineering (SeNSE), which was inaugurated on Tuesday, August 6, 2019.

The faculty will be drawn from SeNSE, an interdisciplinary unit, as well as IIT departments to teach and mentor research at the centre. Subrat Kar, Head, SeNSE, informed indianexpress.com that the centre is hiring more teachers and has a provision for up to 13 posts.

While the entrance to MTech and MSR courses will take place through GATE, the admissions to certificate courses will take place on the basis of CGPA or marks obtained in previous classes. Kar said, "In case we receive a high number of applications, we might have a screening test in form of a written exam for certificate courses."

For regular courses, the capacity will be 21 students, while for the certificate programme, the institute is expecting around 20 students each, though there is no upper limit.

For MTech and certificate courses, the applications will begin after the GATE 2020 results are announced. Candidates will be able to apply at the official website, iitd.ac.in. For the MSR and ongoing (fulltime and part-time) PhD programme, offline applications are accepted throughout the year.

In terms of eligibility, Kar informed, candidates possessing a graduate degree in engineering can apply, irrespective of the field. The part-time courses will also be available to working professionals.

The SeNSE has six core areas of focus — optical engineering, electronic system design, advanced optical fabrication, micro-opto-electro-mechanical systems, sensor technology and cyber-physical systems — across three application domains that include defence, medical and industrial applications.

Subrat Kar, Head, SeNSE said, "As we move towards the Internet-of-everything, SeNSE will have a research focus in each of the constituent areas, for such a future."

V. Ramgopal Rao, director, IIT Delhi noted, "SeNSE will be following a multi-disciplinary approach with a strong industry connect and with prototype development as a focus. It will draw upon its talent from multiple departments and will have as many faculty members with industry affiliation as core faculty members. Soon, we hope to have at least 20 faculty members working on cutting edge research solutions in SeNSE."

SeNSE offers research laboratories in the area of electronic systems and optical instrumentation. It also has excellent research facilities such as Laser Applications and Holography Laboratory, Electronic Systems Engineering, Optical workshop and Metrology.

It is equipped with CAD and Computational Lab to support research activities and will upgrade its existing facilities and develop additional laboratories to carry out research in its core areas, as informed by the institute.

Industries knock on IIT-Delhi door for tech assistance
August 7, 2019 https://timesofindia.indiatimes.com/city/indore/industries-knock-on-iit-d-door-for-tech-assistance/articleshow/70565136.cms

Aiming to cut down on increasing cost of operations and adapt advanced technology for business advancement, an association of small scale industry has sought assistance from Indian Institute of Technology (IIT), Delhi.

Rising cost of operations, shrinking margins and fast updating technology have left small scale industries look for alternatives to remain in business.

Industries under banner of Global Forum for Industrial Development (GFID) have approached Foundation for Innovation and Technology Transfer, an industry interface wing of IIT, Delhi to provide technological assistance.

GFID president Deepak Bhandari said, "We are in talks with the industry interface of IIT, Delhi to provide us technical assistance. With limited resources, small scale industries struggle to keep themselves updated with technology advancement and measures to remain in business. Assistance from institute like IIT will help industries to cope with challenges."

The industry body with over 350 members from corrugated, paint, pharmaceutical, engineering goods and printing press among other verticals has requested the institute to provide training sessions to industries members.

Virendra Porwal, GFID chairman said, "Business is survival of the fittest. Small scale industries have limited options and resources to enrich themselves because everything comes with a cost. But if everyone comes on a common platform then cost becomes economic and affordable."

Some of the important topics on which industries have demanded assistance include cost cutting, bulk management, technology introduction, export promotion, market expansion and skill development among others.

Industries said widening skill gap has emerged as a potential challenge for industries in the region which should be addressed on priority.

Bhandari said, "We have requested the institute for long term assistance so that we can come up with an advanced training center for skill development. This centre will work in collaboration with IIT Delhi, which will help in bridging skill gap."

New Paper for Biomedical Engineering IIT GATE 2020 Introduced; Exam Date, Latest Syllabus & Important Note Here

August 6, 2019 https://krishijagran.com/news/new-paper-for-biomedical-engineering-iit-gate-2020-introduced-exam-date-latest-syllabus-important-note-here/

A new paper for Biomedical Engineering is introduced in Graduate Aptitude Test in Engineering (GATE) from the year 2020. It is likely to unify undergraduate syllabus of Biomedical Engineering among different universities. It has been done to aid stimulating the growth of product development and research in India.

Indian Institute of Technology (IIT), Delhi will conduct the examination on February 1, 2, 8 and 9, 2020. Applications for it will begin from September 3. Interested candidates can apply at the official website, gate.iitd.ac.in. The online application process will be closed on September 24, 2019.

What is the Syllabus of Biomedical Engineering IIT GATE 2020?

Section 1:
Engineering Mathematics

Linear Algebra: It includes Matrix algebra, systems of linear equations, Eigenvalues and Eigenvectors. Calculus: Mean value theorems, theorems of integral calculus, partial derivatives, maxima and minima, multiple integrals, Fourier series, vector identities, line, surface and volume integrals, Stokes, Gauss and Green's theorems.

Differential equations: First order equation (linear and nonlinear), higher order linear differential equations with constant coefficients, method of variation of parameters, Cauchy's and Euler's equations, initial and boundary value problems, solution of partial differential equations: variable separable method. Analysis of complex variables: Analytic functions, Cauchy's integral theorem and integral formula, Taylor's and Laurent's series, residue theorem, solution of integrals.

Probability and Statistics: Sampling theorems, conditional probability, mean, median, mode and standard deviation, random variables, discrete and continuous distributions: normal, Poisson and

binomial distributions. Tests of Significance, statistical power analysis, and sample size estimation, Regression and correlation analysis.

Numerical Methods: Matrix inversion, solutions of nonlinear algebraic equations, iterative methods for solving differential equations, numerical integration.

Section 2:

Electrical Circuits

Voltage and current sources: it comprises of independent, dependent, ideal and practical; v-i relationships of resistor, inductor, mutual inductor and capacitor; transient analysis of RLC circuits with dc excitation. Kirchoff's laws, mesh and nodal analysis, superposition, Thevenin, Norton, maximum power transfer and reciprocity theorems. Peak-, average- and rms values of ac quantities; apparent-, active- and reactive powers; phasor analysis, impedance and admittance; series and parallel resonance, locus diagrams, realization of basic filters with R, L and Celements.

Section 3:

Signals and Systems

Continuous and Discrete Signal and Systems: It includes Periodic, aperiodic and impulse signals; Sampling theorem; Laplace, Fourier and z-transforms; transfer function, frequency response of first and second order linear time invariant systems, impulse response of systems; convolution, correlation. Discrete time system: impulse response, frequency response, pulse transfer function; DFT; basics of IIR and FIR filters.

Section 4:

Analog and Digital Electronics

Characteristics and applications of diode, zenerdiode, BJT and MOSFET; small signal analysis of transistor circuits, feedback amplifiers. Characteristics of operational amplifiers; applications of opamps: difference amplifier, adder, subtractor, integrator, differentiator, instrumentation amplifier, buffer. Combinational logic circuits, minimization of Boolean functions. IC families: TTL and CMOS.

Arithmetic circuits, comparators, schmitt trigger, multi-vibrators, sequential circuits, flipflops, shift registers, timers and counters; sample-and-hold circuit, multiplexer. Characteristics of ADC and DAC (resolution, quantization, significant bits, conversion/settling time); basics of number systems, microprocessor and microcontroller: applications, memory and input- output interfacing; elements of data acquisition systems.

Section 5:

Measurements and Control Systems

SI units, systematic and random errors in measurement, expression of uncertainty – accuracy and precision index, propagation of errors. PMMC, MI and dynamometer type instruments; dc potentiometer; bridges for measurement of R, L and C, Q-meter. Basics of control engineering –

modeling system: transfer function and state-space model, stability analysis: time domain and frequency domain analysis.

Section 6:

Sensors and Bioinstrumentation

Types of Instruments: it includes Resistive-, capacitive-, inductive-, piezoelectric-, Hall Effect sensors and associated signal conditioning circuits; Optical sources and detectors: LED, Photo-diode, p-inandavalanchephotodiode (APD), light dependent resistor and their characteristics; basics of magnetic sensing; Interferometer: applications in metrology; basics of fiber optic sensing. Basics of LASERs.

Origin, nature, and types of Biosignals, Principles of sensing physiological parameters, types of transducers and their characteristics, Electrodes for bioelectric signals, Bioelectric signals and their characteristics. Biopotential Amplifiers, Noiseandarte facts and their management, Electrical Isolation (optical and electrical) and Safety of Biomedical Instruments. Generation, Acquisition, and signal conditioning and analysis of biosignals: ECG, EMG, EEG, EOG, Blood ERG, PCG, GSR. Principles of measuring blood pressure, Core temperature, volume & flow in arteries, veins and tissues – Lung volumes, respiration and cardiacrate.

Section 7:

Human Anatomy and Physiology

Basic elements of human body- i.e. muscloskeletal system, respiratory system, circulatory system, excretory system, endocrine system, nervous system, digestive, nervous, immune, integumentary, and reproductive systems, Basics of cell and molecular biology.

Section 8:

Biomechanics

Engineering Mechanics: such as Free-body diagrams and equilibrium; trusses and frames; virtual work; kinematics and dynamics of particles and of rigid bodies in plane motion; impulse and momentum (linear and angular) and energy formulations, collisions. Hard Tissues: Definition of Stress and Strain; Deformation Mechanics. Bone structure & composition mechanical properties of bone, cortical and cancellous bones, viscoelastic properties, Maxwell & Voight models – anisotropy, Fatigue Analysis

Soft Tissues: Structure, functions, material properties and modeling of Soft Tissues: Cartilage, Tendon, Ligament, Muscle – Hodgkin-Huxley Model.

Human Joints and Movements: Skeletal joints, forces and stresses in human joints, types of joint, biomechanical analysis joints, parameterisation and analysis in Gait

Bio fluid mechanics: Flow properties of blood, Dynamics of fluid flow in the intact human cardiovascular system – modeling and experimental approaches, Pulse wave velocities in arteries, Measurement/Estimation of In-vivo elasticity of blood vessels.

Section 9:

Medical Imaging Systems

It includes basic physics and Instrumentation of medical images in X-Ray, Ultrasound, CT, MRI, PET, FMRI, SPECT, and their characteristics.

Section 10:

Bio-materials

They include basic properties of bio-materials, biocompatibility, bioactivity, biodegradable materials, Fundamentals of implants and medical devices, drug delivery carriers, scaffolds for tissue engineering.

Candidates Must Note:

The exam will now be held on 25 subjects such as Biomedical Engineering, Aerospace Engineering, Agricultural Engineering, Architecture and Planning, Biotechnology, Civil Engineering, Chemical Engineering, Instrumentation Engineering, Mathematics and Mechanical Engineering and other subjects.

IIT-Delhi looks at building hostel facility with private partnership

August 5, 2019 https://www.hindustantimes.com/education/iit-delhi-looks-at-building-hostel-facility-with-private-partnership/story-4RP07O2tnqpOmcI7An9KGM.html

At 320 acres, IIT-Delhi is the smallest amongst the 23 IITs in the country. And, with its student strength constantly increasing due to factors like introduction of a supernumerary quota for girls, EWS quota and now research scholars from ASEAN countries too expected to join, the hostels in the institute are bursting to the seams.

As it grapples with a shortage of up to 1,000 hostel spaces, the Indian Institute of Technology, Delhi is exploring the feasibility of setting up a residential building on a public private partnership (PPP) basis, something that would be a first for any IIT if approved.

The idea was discussed during a meeting of the board of governors of the institute last week. The institute director V Rampgopal Rao and other officials mentioned the need to explore new ways to address the challenge.

IIT Delhi, one of the country's top ranked engineering colleges and among the first to be granted the Institutes of Eminence status, faces an acute problem of space crunch. At 320 acres, it is the smallest amongst the 23 IITs in the country.

And, with its student strength constantly increasing due to factors like introduction of a supernumerary quota for girls, EWS quota and now research scholars from ASEAN countries too expected to join, the hostels in the institute are bursting to the seams. So much so, that the institute already is considering tying up with space aggregators like Oyo to lodge its students.

However, as a long-term solution, it also decided to explore the possibility of creating hostels through the PPP mode.

"The matter was discussed in the board of governors meeting last week and it was decided that the institute should examine if a change can be made from the traditional model and a new option of providing residential accommodation can be provided without compromising the students' interests," a senior official said.

However, the way forward is not that easy as there is no precedent among any IITs, or, for that matter, other public institutions.

"This is new territory and a lot of aspects have to be looked at. In the meeting, it was mentioned that probably one NIT had tried something. However, for us, it is a new area and all aspects have to be examined," the official quoted above added.

There are advantages of the PPP mode that it can bring finds from the private sector, probably a professional approach and may also run hostels sparing the institute's energy to focus on academics, the official said.

There is a limit to government support and even the amount given under Higher Education Funding Agency (HEFA) by the HRD ministry have to returned to the institutions. Bringing up hostels can also take a lot of time. However, issues like how to ensure quality, access and affordability for all students and protecting their interests have to be balanced, the official added.

When contacted, the institute's Deputy Director (Strategy and Planning) M Balakrishnan confirmed that the IIT was exploring the possibility of hostels through the PPP mode but added that a whole lot of aspects were to be examined.

"As new situations and challenges emerge, out of the box ideas have to be considered. But we have to find the right model. We have been considering the possibility of a PPP model. However, all aspects are being studied before any step is taken," he said.

IIT Delhi exhibits technological products that solve common social problems

August 5, 2019 https://news.careers360.com/iit-delhi-exhibits-technological-products-solve-common-social-problems

IIT Delhi organised a technology exhibition to showcase 76 technological products and models designed to solve the everyday problems concerning the general population.

The exhibition named TechEx demonstrated products developed under the two flagship schemes of the Ministry of Human Resource Development, IMPacting Research, INnovation and Technology (IMPRINT) and Uchhatar Avishkar Yojana (UAY).

Some prominent exhibits included prototypes of low-cost tuberculosis diagnostics, affordable cancer diagnosis/treatment, electric vehicle charger, remote healthcare delivery system, low-cost fire detection system, air quality monitoring network system and detection of pesticides and insecticides in fruits and vegetables, etc.

The Union Human Resource Development Minister Ramesh Pokhriyal inaugurated the exhibition. The minister informed that many of the exhibited products were at the verge of commercial production.

The subject of research should relate to the social concerns of the region. Today, behind the development of developed countries, there is a special contribution of the research done in the universities there and our educational institutions have to play a similar role in building a new India, said the minister during the inauguration.

The IMPRINT scheme was launched in 2015 to provide relevant solutions to engineering challenges in 10 selected technology domains. The UAY was also announced in the same year to promote innovation to improve manufacturing through a government, industry and academia tie-up.

Soon at IIT-Delhi, eggs, sausages and salami — made from moong beans

August 4, 2019 https://indianexpress.com/article/cities/delhi/soon-at-iit-delhi-eggs-sausages-and-salami-made-from-moong-beans-5876238/

The idea is to offer high-protein vegetarian and vegan options to those who either are vegetarian or have turned so because of ethical and health reasons.

On its Industry Day in September, the Indian Institute of Technology, Delhi, will showcase technology to help people operate switchboards using a mobile phone, software to make ride-sharing more efficient and a 5G MIMO radio. But one project promises to stand out — mock meats. At the event on September 21, the project will be served with a side of eggs, sausages and salami — albeit all plant based.

Over the past six months, researchers at the top institute have been experimenting with various material to develop a plant-based substitute for eggs. Having come up with a substitute they are satisfied with, they will now move on to 'chicken' sausages and salami. Once they achieve that target, they will start looking at replicating the taste and texture of more complex meats such as fish, mutton and beef.

The idea is to offer high-protein vegetarian and vegan options to those who either are vegetarian or have turned so because of ethical and health reasons.

Across the world, mock meats have been gaining popularity as a niche product aimed at a very specific buyer. Most mock meats, however, use soy proteins as their base. At IIT-Delhi, the main source is the humble moong bean.

 "We started off with eggs because they have more acceptability in the general population. A lot of people, who do not eat meat, would eat eggs. Launching the brand with such a product made sense," said Dr Kavya Dashora, assistant professor at the Centre for Rural Development and Technology, who is heading the research.

Her team includes Poonam Desai, food advisor, along with whom Dashora and several students have spent hours perfecting the recipe. "We tried out chickpea flour (besan) and refined flour (maida), but finally settled on moong beans as it has the best protein content and was able to match the texture of an egg the best," said Desai, as she prepared yet another batch of scrambled eggs in a makeshift kitchen in a laboratory in the institute.

The project is being funded by Rahul Dewan, founder of Four Pursuits Ventures, which funds innovation.

"So far, close to 100 people have tasted the end product over a period of 3-4 months and they are happy. The product that has been developed is more nutritious than an egg. We will eventually move into other spaces as well," Dewan told The Sunday Express.

According to Dashora, the protein content of an egg is around 4% while that of a mock egg is around 8%. The team has sent products to independent bodies to set a benchmark nutritional figure of the product. "We are waiting for the test results. The product is industry-ready and the process of deciding packaging and branding is ongoing. The plain scrambled egg version should be ready to hit the market soon," she said.

IIT Delhi researchers develop first-of-its kind software for predicting, optimising glass compositions

PyGGi will allow researchers and companies to easily predict glasses with superior properties like scratch resistance and crack resistance at the tap of a button.

How many of us have wished for mobile phone screens, glass utensils or window panes that resist damage? Glass makers also wish they had a mechanism for predicting glass compositions to develop products with tailored properties. IIT Delhi researchers have a solution.

IIT Delhi develops machine learning software

Despite two thousand years of usage, developing glasses with tailored properties is still an open challenge and to address this problem, researchers at IIT Delhi have developed a first of its kind machine learning software -- Python for Glass Genomics (PyGGi) -- for predicting and optimising glass compositions.

What is PyGGi?

PyGGi will allow researchers and companies to easily predict glasses with superior properties like scratch resistance and crack resistance at the tap of a button.

"Understanding and predicting the compositionstructureproperty relationship is the key to developing novel glasses such as bullet proof and scratch resistant glasses," said N M Anoop Krishnan, a professor at IIT Delhi who is one of the Project Investigators (PI).

"Data-driven approaches such as machine learning and artificial intelligence can exploit our existing knowledge to predict glasses for tailored applications. PyGGi is a software package developed using python, for predicting and optimising the properties of inorganic glasses," he added.

The main aim

The main aim of PyGGi is to reduce the cost in predicting new glasses for tailored applications. "PyGGi will be constantly updated and upgraded to meet the industrial and academic challenges in the field of glass science. We are also open to developing raw modules based on user requirements. These modules can be exclusively given to users who support the research in PyGGi," said professor Hariprasad Kodamana.