



NEWS CLIPS

March 9-15, 2019

Highlights of the Week@IITD

Indian Institute of Technology Delhi and National Institute of Immunology Delhi have signed an MoU

March 15, 2019 <http://indiaeducationdiary.in/indian-institute-technology-delhi-national-institute-immunology-delhi-signed-mou/>



Indian Institute of Technology Delhi and National Institute of Immunology Delhi have signed an MoU under which they have agreed to establish a programme for academic cooperation in areas of mutual interest like collaborative research activities, joint Ph.D. programs and exchange of students. Prof V Ramgopal Rao, Director, IIT Delhi and Prof Amulya K Panda, Director, NII Delhi signed the MoU in the presence of senior functionaries from both institutions.

The MoU, which has been signed on Wednesday, will remain valid initially for five years, and may be continued thereafter also after suitable review and agreement.

Under the MoU, IIT Delhi and NII Delhi have agreed to carry out joint research by submitting joint research proposals to external funding agencies.

They will initiate schemes for carrying out joint and collaborative research; will jointly organise seminars, conferences, workshops and short-term Continuing Education Programmes on topics of mutual interest.

Both institutions will jointly propose and engage in research and training programmes sponsored by the funding agencies (both government and private) and to invite each other's faculty to participate therein.

As per the MoU, IIT Delhi and NII Delhi have agreed to exchange, on a reciprocal basis, faculty and students for limited period of time for purpose of education and research.

Research candidates registered in either of the institutions will be jointly guided for doctoral or post-graduate programmes with joint supervision. IIT Delhi and NII Delhi will also utilize each other's research facilities.

Speaking about the MoU, Prof V Ramgopal Rao, Director, IIT Delhi, said: "One of the objectives of this collaboration is to initiate 20 inter-disciplinary research projects between the faculty of IIT Delhi and scientists from NII Delhi with seed money provided by both the institutions".

Prof Amulya K Panda, Director, National Institute of Immunology Delhi, said: "I feel very happy to sign the MoU with IIT Delhi which is also my alma mater. The research and academic collaboration between these two institutions will lead to a very productive outcome and quite useful for the future generation."

According to the MoU, both institutions will appoint one member of their teaching/research faculty to coordinate the programme on their behalf. The coordinator will periodically review and identify ways to strengthen cooperation between the two institutions.

IITD has a strong research base in engineering and technology and state of the art facilities of nanoscale fabrication, material characterization, Artificial Intelligence, robotics, medical devices, biomaterial and functional textiles.

On the other hand, NII Delhi has a strong research base in biological sciences, immunological research and diseases and state of the art facilities of one of most advanced animal houses and analytical/ molecular biology research facility.

Job offers for IIT Delhi students in ongoing placements

March 11, 2019 <https://www.mynation.com/jobs/job-offers-for-iit-delhi-students-in-ongoing-placements-po6z7m>

There has been a 15% increase in the job placements by IIT Delhi compared to last year. Over 900 students got job offers from national and international firms, which sets a new benchmark for the institution.

IIT Delhi, one of the premier institutions in India, has broken its 10-year record of job placements in the current season. The campus has seen a record number of job placements, 15% higher than that of last year. With over 1,000 job offers including preplacement offers from national and international giants, the institution has set a new benchmark. Still, many more companies have lined up for jobs in Phase II (or second phase) of the placement season.

Of the total placements, fields that backed the maximum offers are electrical, chemical, civil and mechanical engineering, which together make 32% of the total jobs offered, followed by the students of information technology who got 20% of the lot. A few students opted for the deferred placement option, an option available for the students who want to go for startups. Rest of the offers went to analytics, management, finance, teaching, consulting, and research.

From the 160 preplacement offers bagged, around 90 students accepted the offer. 43 students got placed internationally in Europe, Singapore, the US and Taiwan, out of which only 33 decided to explore these. IIT Delhi last year in 2018 made it to the top 100 institutions around the globe in the Global University Employment Ranking has refused to give the specific details about the packages offered, as it's a breach of companies' policy.

"Job offers from core companies have increased this year, including those registering under the domain of information technology and others, which is 60% of the total offers," said S Dharmaraja, head of training and placement.

Anishya Madan, industry liaison officer at IIT Delhi, considers this success a combined effort of the placement team, student coordinators along with a positive reaction from the industry. With Phase I started on December 1, Phase II, which began in January, will continue till the end of May. IIT-Delhi conducts its campus interviews in two phases.

IIT Delhi alumni establish award to promote innovation, entrepreneurship

Alumni of IIT Delhi from the 1969 batch have contributed over Rs 1 crore to their alma mater for establishing an award to promote innovation and entrepreneurship.

The alumni have signed a Memorandum of Understanding (MoU) with premier institute and named the award-- 'Batch of 1969 Innovation Fellow (Award)' on the occasion of the Golden Jubilee reunion of the batch here.

The Award will be executed and managed by the Foundation for Innovation and Technology Transfer (FITT) of the Indian Institute of Technology (IIT) Delhi.

"While funds are usually available for students to continue with their projects in the incubation

mode, most investors do not permit their funds to be used as stipends or salary for the students themselves," Rajat M Nag, an alumnus of the 1969 batch said.

"Many, if not most, graduating students thus find it difficult to continue with their projects as the alternative of a high paying jobs are much more attractive than the risk of supporting themselves using personal resources to work on projects which ultimately may not find venture capital support," he added.

The batch has proposed to partially fund this gap by establishing the corpus at IIT Delhi for providing an annual stipend to a graduating student at any level and of any discipline or programme in any department, centre or school.

The award would enable the recipients to continue working on their near finished project to bring it to a level of preparation for serious consideration by investors.

It will carry a monthly stipend of Rs 1 lakh for a period of one year. In exceptional cases, the awardees may be considered for further support for a maximum of six months.

The corpus will enable the institute to present one award annually for a 10-year period (2019-2028).

"IIT Delhi alumni have made their mark in the entrepreneurship space with over 300 successful companies created by them all over the world. This award is a great beginning to similar fellowships institute is planning to create for budding entrepreneurs. We welcome this initiative from our alumni," said V Ramgopal Rao, Director, IIT Delhi.

IIT Delhi alumni establish award to promote innovation, entrepreneurship **March 10, 2019**

https://timesofindia.indiatimes.com/articleshow/68344525.cms?utm_source=contentofinterest&utm_medium=text&utm_campaign=cppst

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आईआईटी दिल्ली के भूतपूर्व छात्रों ने पुरस्कार शुरू करने के लिए धनराशि दी

March 9, 2019 <https://navbharattimes.indiatimes.com/india/former-students-from-iit-delhi-have-given-funds-to-start-the-prize-/articleshow/68333284.cms>

आईआईटी दिल्ली के 1969 बैच के भूतपूर्व छात्रों ने नवोन्मेष और उद्यमिता को बढ़ावा देने के वास्ते एक पुरस्कार शुरू करने के लिए अपने संस्थान को एक करोड़ रुपये से अधिक का योगदान किया है। भूतपूर्व छात्रों ने यहां बैच के स्वर्ण जयंती पुनर्मिलन के मौके पर आईआईटी दिल्ली के साथ एक सहमति पत्र पर हस्ताक्षर किये हैं और पुरस्कार का नाम 'बैच आफ 1969 इनोवेशन फेलो (अवार्ड)' रखा है। पुरस्कार का कार्यान्वयन और प्रबंधन आईआईटी दिल्ली के फाउंडेशन फॉर इनोवेशन एंड टेक्नोलॉजी ट्रांसफर द्वारा किया जाएगा। 1969 बैच के भूतपूर्व छात्र

नयी दिल्ली, नौ मार्च आईआईटी दिल्ली के (भाषा)1969 बैच के भूतपूर्व छात्रों ने नवोन्मेष और उद्यमिता को बढ़ावा देने के वास्ते एक पुरस्कार शुरू करने के लिए अपने संस्थान को एक करोड़ रुपये से अधिक का योगदान किया है। भूतपूर्व छात्रों ने यहां बैच के स्वर्ण जयंती पुनर्मिलन के मौके पर आईआईटी दिल्ली के साथ एक सहमति पत्र पर हस्ताक्षर किये हैं और पुरस्कार का नाम 'बैच आफ 1969 इनोवेशन फेलो (अवार्ड)' रखा है। पुरस्कार का कार्यान्वयन और प्रबंधन आईआईटी दिल्ली के फाउंडेशन फॉर इनोवेशन एंड टेक्नोलॉजी ट्रांसफर द्वारा किया जाएगा। (एफआईटीटी) 1969 बैच के भूतपूर्व छात्र रजत एम नाग ने कहा कि कई छात्रों को अपनी परियोजना को जारी रखने में दिक्कत

होती है क्योंकि अपने संसाधनों का इस्तेमाल करते हुए परियोजना पर काम करने की बजाय अच्छे वेतन वाली नौकरी अधिक आकर्षक लगती है।

IIT-D alumni initiate award for graduating students

March 9, 2019 https://www.business-standard.com/article/news-ians/iit-d-alumni-initiate-award-for-graduating-students-119030900388_1.html

The alumni of the 1969 batch of Indian Institute of Technology (IIT) Delhi have started an award to provide annual stipend to a graduating student of the institute every year.

A memorandum of understanding (MoU) has been signed for the 'Batch of 1969 Innovation Fellow Award' that will carry a monthly stipend of Rs 1 lakh for one year, as per a statement, here on Saturday.

In exceptional cases, the awardee may be considered for further support for a maximum of six months.

"To set up a special fund for this award, the Batch of 1969 has collectively contributed over Rs 1 crore with an aim to promote the spirit of innovation and entrepreneurship among graduating students at IIT Delhi," reads the statement.

"While funds are usually available for students to continue their projects in the incubation mode, most venture/angel funders do not permit their funds to be used as stipend/salary for the students themselves," it said.

"Many, if not most, graduating students thus find it difficult to continue with their projects as the alternative of a high paying jobs are much more attractive than the risk of supporting themselves using personal resources to work on projects that ultimately may not find venture capital support."

The fund will partially bridge the gap by establishing the corpus at IIT Delhi for providing annual stipend to a graduating student at any level of any discipline or programme, it said.

The award will be executed and managed by the Foundation for Innovation and Technology Transfer (FITT), IIT Delhi.

IITD & Its Role in Society

IIT Delhi alumni develops a low-cost device that helps visually impaired kids comprehend real-life images

March 14, 2019 <https://www.theoptimistcitizen.com/touchvision-3m-innovations-award-winner/>

How often have we wondered if the people with visual impairment could actually perceive the images we see. Well, the good news is that there is now a solution. Comprising of a portable stand, a tactile book and a mobile app – a ready to use solution is now available in the Indian markets. Ankita Gulati, an IIT-Delhi Alumni has created a low-cost device, TouchVision which is a multi-sensory education platform for making pictures and diagrams accessible for visually impaired children. It is a

patent filed mechanism that facilitates audio-tactile interaction in a simultaneous manner for a child and is completely user-friendly powered by a mobile app and available for the Indian audience. The App uses Finger recognition method, along with simultaneous audio and gesture inputs to make holistic education for vision deprived possible. The innovation has already impacted hundreds of students in the age group of 5 to 10 years.

Ankita, the 3M-CII Young Innovators Challenge Awards winner, started working on it during her masters at IIT-Delhi under her mentor Prof. M. Balakrishnan who advised her to visit various special needs orphanages and organisations for research purposes. Ankita recalls, “One of the schools I visited used handmade diagrams and maps that involved pulses to trace various states of India. A single map was rotated among the whole class and the students could not comprehend anything. Also, the handmade maps were not reusable and unavailable in bulk.” After the initial research work for about 6 months, she started working on her dream to solve a real-world problem and soon the team received a grant of 3 crores by the Ministry of Human Resource and Development (MHRD) to bring the concept to reality.

It took their team three years for the project to be completed after its start in 2015. The hard work proved to be fruitful as the project got nominated for the Design and Innovation award and their project has now been incubated into a start-up. During her journey, she interacted with a lot of special needs educators and explained to them the plight of students at special schools who used handmade tools to comprehend things. “These things somehow limit the potential of such students and consequently their employment opportunities are limited.” reckons Ankita. Their team interacted with around 10 blind schools with over 50,000 students to gain a vision to understand the patterns and thought the process of visually-impaired students.

Even after the development of the product -“TouchVision”, it was a challenge to introduce their device to the public. “Even adults hesitated to use it, let alone children. If there are 100 special schools in Delhi, only 5 out of those used handmade tactile diagrams and hardly 2-3 schools had special educators.” explains Ankita. The trials and testing of their product met with various challenges, but the team eventually came up with a prototype which included dedicated speakers, camera and books which costed around Rs. 15,000. However, after repeated iterations and alteration, the team finally launched the product with – three kinds of tactile books, a portable stand and a mobile application for interaction with the tactile diagrams. TouchVision is currently available in the Indian market at a price of Rs. 3000 and is been used in many schools pan India.

IIT Delhi to Propose Measures to Control Air Pollution in City to Centre

March 11, 2019 <https://www.ndtv.com/india-news/iit-delhi-to-propose-measures-to-control-air-pollution-in-city-to-centre-2006008>

Several initiatives are taken to deal with the problem of air pollution, including ban on construction activities, burning of crackers, restriction of outdoor activities in schools, Mukesh Khare, Professor of Environmental Engineering at IIT Delhi said



IIT Delhi is working closely with the Central Pollution Control Board on the issue.

The Indian Institute of Technology Delhi (IIT Delhi) is working for the central government to devise a plan detailing what action should be taken and at what time for controlling air pollution in the city.

IIT Delhi, which has a Centre of Excellence for Research on Clean Air, meant for research to study air pollution issues in Delhi-NCR region, is working closely with the Central Pollution Control Board on the issue.

"Round the year, several initiatives are taken to deal with the problem of air pollution, including ban on construction activities, burning of crackers and restriction of outdoor activities in schools, to name a few," Mukesh Khare, Professor of Environmental Engineering at IIT Delhi, told news agency PTI.

"However, what is not realised is that suddenly suspending construction activities when air quality has already deteriorated to a certain level does not help much," he added.

"So, it is more advisable to implement the measures beforehand. We are evaluating what should be the timing of what action regarding dealing with air pollution so there is a calendar sort of for the entire year," said Mr Khare, who is leading the evaluation team.

According to Mr Khare, the need for evaluating the timing of the actions was felt few weeks after the launch of the National Clean Air Programme (NCAP) last year.

NCAP is a mid-term, five-year action plan that includes collaborative, multi-scale and cross-sectoral coordination between relevant central ministries, state governments and local bodies.

"The overall objective of initiatives to combat air pollution is comprehensive mitigation actions for prevention, control and abatement of air pollution, besides augmenting the air quality monitoring network across the country and strengthening the awareness and capacity-building activities," Mr Khare said.

"While city-specific action plans are being formulated for 102 non-attainment cities identified for implementing mitigation actions under NCAP, the timing of the actions which needs to be in advance rather than damage control is a grey area which needs to be addressed," he added.

IIT Delhi researchers develop period pain relief roll on

March 11, 2019 <https://timesofindia.indiatimes.com/home/education/news/iit-delhi-researchers-develop-period-pain-relief-roll-on/articleshow/68363702.cms>



The roll on is a natural composition of essential oils and costs Rs 10 per use

Researchers at Indian Institute of Technology, Delhi (IIT-D) have developed a period pain relief roll on - Sanfe - to relieve period pain faced by women during their menstruation cycles. Two third-year BTech students - Archit Agarwal and Harry Sehrawat - decided to find a solution to the problem when one of their friends faced extreme difficulty because of menstrual pain while taking semester exams.

The roll on is a natural composition of active essential oils, which provides a cooling sensation when applied on cramp affected areas. The product is medically tested and FDA approved. It costs Rs 169 and can be used for three period cycles.

15 March

Mumbai bridge collapse: Civic body ignored IIT-Bombay's recommendation

<https://www.hindustantimes.com/mumbai-news/mumbai-bridge-collapse-civic-body-ignored-iit-bombay-s-recommendation/story-pKK7mQCKJZiBu4nGVQwVcM.html>

The collapse of a foot overbridge (FOB) outside Chhatrapati Shivaji Maharaj Terminus (CSMT) on Thursday was the second such incident in nine months in Mumbai.



On July 3, 2018 a pedestrian pathway of Gokhale bridge had collapsed on the railway tracks at Andheri railway station. Two people had lost their lives and five were injured in the incident.

Nine months, two broken bridges, eight lives lost. The collapse of a foot overbridge (FOB) outside the Chhatrapati Shivaji Maharaj Terminus (CSMT) on Thursday was the second such incident in nine months in the city.

The incident, which took place in the evening, saw a slab of the bridge collapse, killing six people and injuring 31. Earlier on July 3, 2018 a pedestrian pathway of Gokhale bridge had collapsed on the railway tracks at Andheri railway station. Two people had lost their lives and five were injured in the incident.

Immediately after the pedestrian pathway collapse at Andheri station, Union railway minister Piyush Goyal had ordered an audit of 445 bridge structures that were crossing the railway tracks or were adjacent to it.

The audit was headed by the Indian Institute of Technology (IIT)-Bombay and comprised engineers from Central, Western Railway and Brihanmumbai Municipal Corporation (BMC). The team that audited the bridge structures included foot overbridges (FOB) and road overbridges (ROB) in the city over the railway tracks. The team during the earlier stage of its investigation had shut the Delisle ROB in Lower Parel, citing the bridge was unsafe. FOBs in other parts of the city were also shut.

Though the portion of the bridge that collapsed outside CSMT was not audited by the experts of IIT Bombay, a series of recommendations were shared with the civic body during the inspection of the other bridges on the railway premises, said an official who was part of the team auditing bridges on the railways. The civic body in return had stated that such an audit of bridges across the city are being conducted, the official said.

“During the inspection it was pointed out to BMC (the need) for auditing the bridges are on the road. The civic body had stated that (such) an audit was going on,” said the official. Meanwhile, a CR official said granite had been placed in 2018 on the bridge near CSMT during maintenance work, making the structure heavy.

When contacted, the municipal commissioner and additional municipal commissioner were unavailable for comments. The bridge was constructed by BMC in 1988. It carried out beautification by coloring and by replacing tiles with granite in 2016. Later on, the BMC had appointed a private consultant for structural audit of the bridge in 2017-18 in which the bridge was declared in C2 B, which means it needs minor repairs. The report of the Andheri bridge collapse had revealed failure on part of both the WR and BMC. Paver blocks on the pathway had increased the weight on the bridge, leading to the collapse.

IIT-Kharagpur to design desi supercomputer

<https://timesofindia.indiatimes.com/city/kolkata/iit-kgp-to-design-desi-supercomputer/articleshow/68417233.cms>



IIT Kharagpur is building a supercomputer of a speed of 1.3 Petaflops, all the parts of which will be manufactured indigenously.

A Petaflops is a unit of computing speed equal to 1,000 million million (10^{15}) floating-point operations per second. In three months, the institute will be ready to pull the veil off this genius, promised the computer wizards at the institute.

About the computer

- A Petaflops is a unit of computing speed equal to 1,000 million million (10^{15}) floating-point operations per second
- A petaflops computer requires a massive number of computers working parallelly on the same problem
- The supercomputer with 1.3 Petaflops speed will support research, demanding traditional high-performance computing (HPC) as well as

projects with deep storage, big data analytics, web platforms for bioinformatics and AI services

Current standings

- As of Nov 2018, the fastest supercomputer on the Top 500 supercomputer list is the Summit, in the United States, with a High Performance LINPACK benchmark score of 143.5 PFLOPS
- The US has five of the top 10 and China has two of the leading supercomputers in its kitty

INDIAN SUPERCOMPUTERS IN TOP 500

| Rank | Where | Name |
|------|--|----------------------|
| 45 | Indian Institute of Tropical Meteorology | Pratyush (Cray XC40) |
| 73 | National Centre for Medium Range Weather Forecasting | Mihir (Cray XC40) |
| 337 | A software company | InC1 - Lenovo C1040 |
| 488 | Indian Institute of Science | SERC - Cray XC40 |

The supercomputer is being built at the high-performance computing (HPC) facility and data centre ecosystem that has come up at the institute under the National Supercomputing Mission, which aims at building the fastest and most powerful computers in the country.

The Centre for Development of Advanced Computing (C-DAC), which is an autonomous scientific society of the ministry of electronics and information technology, scouted all the IITs before agreeing to set up the HPC at IIT Kharagpur, where the marvel is being built. An MoU between the institute and C-DAC was signed on March 12 for the project.

The department of science and technology (DST), along with experts from Niti Ayog, DRDO and IISc, will help IIT Kharagpur develop this supercomputer.

As the new computing system would revolutionise output and efficiency in complicated calculations, researches on cryptography, chemistry, molecular dynamics, drug discovery, data sciences would directly benefit, said director of IIT Kharagpur Partha Pratim Chakraborty.

“Some other fields that will benefit from the project are healthcare, smart cities, geo-sciences and new materials,” he added.

The computer will be built in three phases and no imported part will be used anywhere. The first phase will involve assembling, the second will focus on assembling and manufacturing and the third phase will perfect the design and manufacturing details with all major parts and accessories to be indigenously designed and manufactured, as is C-DAC’s mandate.

After the new supercomputer is built, the HPC will be continuously building improved versions. Students will also use the facility for academic programmes at the institute, like MTech, doctoral programmes as well as micro-specializations.

14 March

Breath of fresh air: Nanoclean has a novel way to help city dwellers fight pollution

<https://economictimes.indiatimes.com/small-biz/entrepreneurship/breath-of-fresh-air-nanoclean-has-a-novel-way-to-help-city-dwellers-fight-pollution/articleshow/68404010.cms>

While, in the peak season, product sales hover between 20 - 30 lakh units per month, in the off season which is from May - August, it is around 2-3 lakh units.



The company is keen to diversify their portfolio to include other cutting edge products in the health and cosmetics space which will help them carve a strong niche as innovators.

A chance visit to a Delhi mall in December 2015 sparked off the idea for three IITians to come up with a sustainable solution for better air. It was essentially the insertion nasal filter devices being used at a stall that got them brainstorming on a new and more ‘comforting’ way to breathe easy.

The alarming levels of pollution hazards in the country can also be gauged from a WHO report published last year. Indian cities dominated the findings with 9 out of the 10 most polluted cities in the world being from India! Kanpur topped the list of the world’s most polluted cities while Delhi stood at the sixth spot with PM 2.5 levels of 143.

In this backdrop, Nanoclean, which used nanotechnology and created nasofilters to make clean air a priority for city dwellers created a strong niche for itself in the market. Billed as a company which offers solutions to curb pollution and promote better health, their products boast of being high on the tech and design quotient. Founded by IIT grads Prateek Sharma, Tushar Vyas and Jatin Kewlani in February 2017, the nasofilters - which can be worn externally on the nose - help to prevent pollutants from seeping in.

“We had this idea that an insertion technique will irritate the user and can also destroy natural hair, but one can make it into an external device instead for better comfort,” says Kewlani, COO of Nanoclean who oversees the sales and production aspects of the company.

In this, he says, the nose is in immediate contact so even if one feels slight breathing resistance; it will be felt far more since the surface area is less. “The breathing resistance of this will be much lesser than a normal mask. 0 - 4 millibar breathing resistance is allowed in masks. 0.6 millibar is the breathing resistance in these units and they can easily be worn for up to 12 hours,” he adds.

But there were design-led bottlenecks that they experienced initially. Finalising the medical tape took its own time, effort and resources. “We had to be careful with the tape since it comes in close contact with the skin for a user. So just in zeroing in on the tape, it amounted to expenses of Rs 15 lakh. First we tried to procure it from China but one has to do bulk purchases there and that was costing us too much. So we tried different places at different amounts. Finally we settled on 3M in India and have a contract with them now,” reveals Kewlani.

These are priced at a very affordable cost of Rs 10 per unit which, Kewlani explains, was a conscious strategy even though a similar product in the US would be no less than Rs 100. “In India, it is a question of scale. We kept lower margins since we wanted to sell this product in volumes. We can also raise the price and sell it for Rs 20 but then our volumes will also go down by half. Consumption won’t be as much as it is now,” he says.

Moreover, labour and manufacturing facilities are cheaper in India as compared to the US where in-house facilities are expensive. “The pricing strategy in US is positioned that way - there are a lot of pollen allergies in US, so it is made keeping that in mind,” he avers.



The team: (L to R) Jatin Kewlani, Tushar Vyas and Prateek Sharma

Nano miracle

Initially, the trio was clueless on how to take the idea forward. Tushar had vaguely heard of nanofiber technology and set up a meeting with Ramgopal Rao, Director at IIT Delhi, who had his own lab of the technology in IIT Mumbai. Rao asked them to meet the professor from the Textile Department.

The meeting with the professor got delayed due to the latter's packed schedule but, as luck would have it, the professor's wife who was asthmatic chanced upon the product samples and recommended their use. Kewlani can't help suppress a smile when he recalls how their top team was built, thanks to many such 'chance' encounters. "Our entire head level team was made this way. Both the professors came on board after using the product. Ashwani sir's wife was asthmatic. Our investor, Sanjeev Jain, has his own hospital - he gave some samples of the product to his doctors who used it and said it's a very good product," he reminisces.

Their first round of private investment came via seed funding from IIT Delhi alumnus Sanjeev Jain. Investment received from the government so far has been to the tune of Rs 55 lakh, with a total commitment of Rs 85 lakh promised under the different schemes.

They are now raising their next round, a pre-series a funding, with a pool of investors and the plan is to have a final round of fundraising to develop their own manufacturing facility. At present, their manufacturing is done at a facility in Ahmedabad and Noida.

Aggressive plans lined up

The company has been seeing a robust demand since the time it started operations in the country. While, in the peak season, sales hover between 20 - 30 lakh units per month, in the off season which is from May - August, it is around 2-3 lakh units.

Delhi NCR, Bangalore and Mumbai are in the lineup as the three main cities where major demand for nasofilters currently comes from, with Delhi NCR seeing the maximum demand at 70% followed by Bangalore and then Mumbai.

Their target in the next financial year is Rs 50-60 crore. "This is the targeted revenue since next year we will be focused on setting up of the manufacturing facility which we plan to do on a grand scale. After that, we foresee that we will be making this company into an IPO in the next three years. People find that quite unrealistic but we will do it," Kewlani says confidently.

A plan to ramp up their export vertical during the off season is in the pipeline. Moreover, they are also keen to diversify their portfolio to include other cutting edge products in the health and cosmetics space which will help them be in a differentiated space as innovators. "The pipeline of products that we have planned, which I cannot reveal right now, will be game changing products. They will completely disrupt the market," he highlights, the enthusiasm brimming in his eyes.

Kewlani is of the view that certain nuances can come in handy as an entrepreneur. Too much optimism early on, he feels, can act more as a disadvantage. "At times, the feeling that one can

conquer it all may be too misplaced. At the starting level, it is very important to have someone who says No. One should hear “no’s” more often,” he adds emphatically.

IIT & IISc collaborate on Climate Change initiative

<https://economictimes.indiatimes.com/news/science/iit-iisc-collaborate-on-climate-change-initiative/articleshow/68407620.cms>

The assessment exercise is being undertaken to cover all the 12 Indian Himalayan region (IHR) states using a common framework.

Indian Institutes of Technology (IITs)-Guwahati and Mandi and Indian Institute of Science Bengaluru have collaborated to develop a ‘Climate Change Vulnerability Assessment for the Indian Himalayan Region Using a Common Framework.’

The assessment exercise is being undertaken to cover all the 12 Indian Himalayan region (IHR) states using a common framework.

Comparable vulnerability assessments are useful for the government officials, implementers, decision makers, funding agencies and development experts, according to a release shared by IIT Mandi.

The 12 states include Assam, Manipur, Meghalaya, Mizoram, Nagaland, Tripura, Arunachal Pradesh, Sikkim, the hilly districts of West Bengal, Himachal Pradesh, Uttarakhand, Jammu and Kashmir.

“The various research projects undertaken by IIT Mandi address this vulnerability, hazard and extreme events in the Indian Himalayan Region,” Timothy A. Gonsalves, Director, IIT Mandi, said.

'SHE' MTech programme to be launched at IIT Kharagpur

<https://www.indiatoday.in/education-today/news/story/-she-mtech-programme-to-be-launched-at-iit-kharagpur-1477918-2019-03-14>

IIT Kharagpur is launching two programmes in the upcoming session -- MTech programme in Safety, Health and Environment (SHE) and MTech programme in Geomechanics for Mineral and Energy Resources.

To promote safety measures in mining operations, IIT Kharagpur's Dept. of Mining Engineering is launching a new MTech programme in Safety, Health and Environment (SHE). SHE is critical for every process industry like mining, chemical industry or car manufacturing etc that deals with production involving substantial human resources require appropriate training to ensure the quality of life of people, product and process.

In recent times, safety aspects are much in focus in emerging areas such as safety engineering, risk assessment and safety management plan, loss control, ergonomics, human behaviour and virtual reality.

The MTech course will focus on subject areas such as environmental engineering and management, safety, health and environment including legislation and laws. Safety engineering and analytics,

industrial hygiene and pollution control, subsurface environment, risk and reliability engineering, waste management and treatment for solid, water and hazardous materials, occupational ergonomics etc.

"A holistic approach towards safety and health in the workplace is the need of the day, especially in India, where we think safety is somebody else's job. But if we can give the necessary knowledge to Masters-level students - whether from Mining, Electrical, Mechanical, Civil, or Petroleum engineering - that culture will be engendered," said Prof. Debasis Deb, Head of the Department of Mining which has been recently ranked among the top 50 globally by QS Subject Ranking 2019.

The department will also reach out to industry professionals in the mining, chemical and petroleum industry for short term courses on SHE that helps in the training and retraining of personnel, he confirmed.

Another programme

The department will launch another MTech programme in Geomechanics for Mineral and Energy Resources. "In mining operations or oil and gas drilling, hydraulic fracturing and related activities, it is critical to assess stability of geological formations, stress and strength thereof on the natural structure due to such operations. Geomechanics will be able to predict the stress to geological formations, risks and opportunities involved and recommend mitigation plans," explained Prof. Deb.

The course, which is the first of its kind degree programme in India, will cater to a wide spectrum of branches such as Geology, Mining, Civil or Petroleum Engineering, that is any other branch of science and technology that has something to do with earth sciences.

It will focus on fundamentals and applied geomechanics, the design of underground excavations, subsurface environment, reservoir engineering and geo numerics. An expert in Geomechanics will, therefore, have wide acceptability in relevant industries.

Application procedure

Both the courses are scheduled in the upcoming July semester.

The intake capacity for each programme will be eleven.

Admission will be through GATE BTech students from mining, civil and petroleum engineering departments can opt for the MTech course in GeoMechanics while those from mining, civil, petroleum, chemical, mechanical, electrical, production engineering can opt to do M.Tech. in Safety, Health and Environment.

IIT KGP signs MoU with C-DAC for high performance computing

https://www.business-standard.com/article/pti-stories/iit-kgp-signs-mou-with-c-dac-for-high-performance-computing-119031400457_1.html

The IIT Kharagpur has signed an MoU with Centre for Development of Advanced Computing (C-DAC) to set up a Petaflop high performance computing facility and data center funded under the National Supercomputing Mission.

PetaFlop is the measurement of computing power based on the frequency of mathematical calculations that can be done per second.

Setting up of the 1.3 PetaFlop high performance computing facility and data center is going to change the face of computation-based research and development in India, an IIT KGP statement said Thursday, adding that the MoU was signed on March 12.

With the growing importance of high performance computing in newer research areas in cancer, data protection etc, such facilities as the one being built at IIT KGP will become a core factor in various research domains, the statement said.

IIT KGP Director Prof P P Chakrabarti said the initiative will be undertaken at the Centre for Computational and Data Sciences, located at the institute campus and large-scale computational support will be given to the researchers, who are engaged in research activities in diverse areas of national importance.

The facility is expected to come up in the next 3-4 months with the work to be carried in three phases of - 'assembling, assembling and manufacturing and design and manufacturing,' the statement quoted Director General, C-DAC, Dr Hemant Darbari as saying.

The C-DAC is a premier R&D organisation of the Ministry of Electronics and Information Technology (MeitY).

All products and accessories will be indigenously designed and manufactured in India.

UGC moots training for new teachers

<https://www.thehansindia.com/telangana/ugc-moots-training-for-new-teachers-511905>

Highlights: The University Grants Commission (UGC) has come up with a proposal to prescribe a one-month...

The University Grants Commission (UGC) has come up with a proposal to prescribe a one-month residential induction programme for the newly recruited faculty members in the higher education. Christened as the Faculty Induction Programme (FIP), it mandates the new faculty in the higher education to undergo a one-month fully-residential training programme, in two phases, on various subjects related to the higher education.

Seeking the suggestions on its proposal, the UGC said that unlike teachers in school education, currently, the faculty in higher education usually join the teaching profession without any formal training in teaching, learning or assessment. Further, understanding and capabilities in these areas along with awareness of policies, governance and administrative structure are developed informally by the faculty members out of their own experiences or from experiences shared by their colleagues.

Against this backdrop, the UGC said that it has designed a formal, systematic FIP to effectively and efficiently handle the transition of new teachers into the teaching profession, it said. As part of the FIP, the newly recruited faculty members will be trained on topics like Understanding Higher

Education in India. The 'Curriculum and Pedagogy in Higher Education for 18 days. Similarly, the 'Research and Professional Development' for four-and-half days.

The 'Personal-Emotional Development, Life skills, Counseling and Motivation' will comprises of 10 per cent of the training programme for three days and 'Values, Ethics and Environmental Consciousness' will cover 10 per cent of the training programme for 3 days, it said. A large part of the assessment of the FIP will be based on these six modules and there will be a built-in process of continuous assessment during the sessions through both the phases of the programme. It will carry 75 per cent weightage.

Further, at the end of the first phase of 18 days, every participant will be given "a practical assignment which may be tried out in the actual classroom situation or institutional context with the help of a mentor from the college/university where the teacher is located."

The report on it will be presented and discussed during the second phase of the induction programme, which carries 25 per cent weightage. Every new faculty member appointed will have to undergo the FIP within a period of one year from the date of his recruitment, the UGC said.

NTA announces exam dates for JEE Main April 2019, Check the dates here

<https://www.jagranjosh.com/news/nta-announces-jee-main-april-2019-exam-dates-148216>



NTA has released the exam dates for JEE Main April 2019. According to the notification released the JEE Main April 2019 examination for the undergraduate and postgraduate programmes of NIT's, IIT's and other Centrally Funded Technical Institutions (CFTI) will be held between April 7, 2019, to April 12, 2019, keeping the upcoming general elections in mind. Since the general elections are scheduled to be conducted from April 11, 2019, to May 19, 2019, the examinations dates of JEE Main April 2019 has been rescheduled from April 7 to 20, 2019. The detailed notification of the exam dates is available on the official website, jeem.nic.in.

According to the notification released by NTA on March 13, 2019, candidates will get the details of their examination shift timings on their JEE Main 2019 admit card which will be released online from March 20, 2019. While JEE Main April 2019 Paper 1 (B.Tech / B.E) will be held between April 8 to 12, 2019. Paper 2 (B.Arch/B.Planning) will be held on April 7, 2019. Also, the JEE Main application form correction window for April 2019 will close on March 15, 2019.

For April 2019, JEE Main will be held in two shifts each day. It is likely that the same shift timings of JEE Main January 2019 will be followed for JEE Main April 2019. Which means, that Paper 1 of JEE

Main 2019 will be held between April 8 to 12, 2019 in two shifts from 9.30 AM to 12.30 PM and 2.30 PM to 5.30 PM? And Paper 2 will be held on April 7, 2019, in the same shifts as above.

JEE Main 2019 is held in two sessions. The earlier session of JEE Main 2019 was held between January 8 to 12, 2019. The results of JEE Main January 2019 was released on January 19, 2019 (for Paper 1) and January 31, 2019 (For Paper 2).

JEE Main is the national level entrance examination conducted by the National Testing Agency for the admission to the undergraduate and postgraduate engineering programmes for admission to the different NIT's, IIT's and the CFTI's. After the results of JEE Main April 2019 is released AIR All India Rankings will be released based on which the admissions will be conducted.

13 March

Global experts call for new approach to tackle air pollution

<https://www.birmingham.ac.uk/news/latest/2019/03/new-approach-to-tackle-air-pollution.aspx>



Delegates gather for the workshop at the Indian Habitat Centre, Delhi

University of Birmingham experts have joined forces with policy makers and researchers in India, and beyond, to call for a new approach to help resolve health, social and economic problems associated with air pollution in Delhi and other similarly polluted regions.

Delegates at a two-day workshop, convened by Dr. William Avis and Prof. Francis Pope, from the University of Birmingham, and Prof. Mukesh Khare, from the India Institute of Technology, Delhi, called for air quality metrics to be incorporated into several of the 17 UN Sustainable Development Goals, most notably SDG3 – Good Health and Well-being.

The conference, held in the Indian capital, also proposed that air pollution be treated as a disaster, in the same way as natural events such as earthquakes and forest fires.

It also called for access to clean air to be considered as a basic human right, as researchers at the workshop launched a special scoping study which highlights the health threat to an estimated 46,000 or more people living and working on the streets of Delhi.

The city's pavement dweller community is mirrored in other Indian cities – thousands of men, women and children at risk of serious illness and death because of their constant exposure to dangerous levels of air pollution.

A research team led by Dr William Avis and involving Monika Walia and Dr Bidhu Mahapatra, from Population Council – India, studied several locations. They discovered that pavement dwellers were frequently exposed to severe or hazardous levels of particulate matter (PM) air pollution which could lead to conditions such as acute or chronic lung disease – one of the most common causes of death among this group of citizens.

The ASAAP India (A Systems Approach to Air Pollution India) workshop brought together partners from India, Africa, Asia, Europe and US to explore how cities such as Delhi can better understand how to tackle air pollution.

Together with IIT Delhi (IITD), All India Disaster Mitigation Institute (AIDMI), Population Council – India, and Urban Management Centre (UMC), University of Birmingham experts led the workshop, which was attended by British Deputy High Commissioner Jan Thompson.

Workshop delegates also called for:

Policy on the welfare of pavement dwellers against high level air pollution exposure;

Inclusion of Air Pollution as Disaster; and

National Clean Air Programme for effective implementation

Professor Francis Pope, from the University of Birmingham, said: “Air pollution kills millions and costs the world economy billions - tackling the problem is not just a technological issue, but a social-economic and social-political challenge that requires a new approach.

“The University of Birmingham is working with partners in India, Africa and Asia to help understand how our cities can tackle problems caused by air pollution. Many conference delegates were surprised there is no SDG specific to clean air, but there is plenty of scope to include clean air action many of the SDGs.”

Professor Mukesh Khare, from IIT Delhi said: “It is vital that we find solutions to the global threat posed by air pollution. It is more than just a health risk; it slows our countries’ development, diminishes the quality of life and reduces incomes.

“Air quality need not have its own UN Sustainable Development Goal, but is extremely important for SDG3 – ensuring healthy lives and promoting well-being for all. Placing air quality metrics in relevant SDGs could help to improve life for millions of people.”

Key contributors to air pollution in Delhi are vehicles; construction, road dust, burning of solid waste, crop burning in Northern Indian states and, during Diwali, fireworks.

‘Vulnerability Scoping Study: Air Pollution Exposure of Pavement Dwellers in Delhi’ was unveiled at the workshop and recommends a range of actions to improve the situation facing the city’s pavement dwellers including:

Wider support at all government levels for implementing the National Clean Air Programme;

Targeted support from civil society groups for pavement dwellers to help tackle the causes of homelessness; and

Information to help pavement dwellers reduce exposure to air pollution.

The workshop brought together representatives of local and national Indian government, academia, civil society and the international development community.

It involved experts from multiple countries, including Kenya (University of Nairobi), Uganda (Uganda National Roads Authority), Ethiopia (Ethiopian Public Health Institute) and a range of cities of the global south, including Dhaka and Kathmandu.

British Deputy High Commissioner to India, Jan Thompson OBE, commented: "Air pollution is a challenge shared by many countries and major cities across the world. The UK has recently launched a new Clean Air strategy for the UK. The problem is particularly acute in India and Delhi because of the pace of development and the specific meteorological and geographical conditions.

"A multi-pronged effort is needed to understand the sources and processes causing this pollution. We are working with Indian partners on joint research that we hope will contribute to better understanding the processes that determine air quality over Delhi, providing new and key insights into pollutant sources, emissions, transport mechanisms, and health impacts in order to develop better informed mitigation options."

IIT Roorkee Organizes MoU Exchange Ceremony between Govt. of India and World Bank

<http://bweducation.businessworld.in/article/IIT-Roorkee-Organizes-MoU-Exchange-Ceremony-Between-Govt-Of-India-And-World-Bank/13-03-2019-168165/>

Under four thematic priority areas i.e. Material science, Water Management & Infrastructure, Railways & ICT, twelve ACEs across Africa in their focus areas, initially seven IIT's (Delhi, Roorkee, Kanpur, Kharagpur, Bombay, Madras and Hyderabad) two of the DST institutions (JNCASR & ARCI) from India are cooperating on twinning model.





IIT Roorkee spearheaded an MoU exchanging ceremony between the Govt. of India Department of Science and Technology and World bank, at India International Centre, as cooperation on strengthening of African Centre of Excellences in western, eastern and southern Africa by way of supporting the capacity building through knowledge transfer for number of students and female students enrolled in ACEs masters and PhD programs.

This shall lead to effective leveraging of the soft prowess of Indian Science and Technology in engagement with Africa Centres of Excellence (ACE's) established in African countries with the assistance of World Bank to receive target oriented support with the aim for enhancing the post graduate and research education and under take the research in academic institutions. It is expected that quality of postgraduate programs and offered research opportunities to students enrolled in these ACEs shall be enhanced due to research and innovation work proposed to be undertaken between faculty of ACEs and faculty of Indian Academic (seven IITs) and R&D Institutions in priority areas of the ACEs.

Under four thematic priority areas i.e. Material science, Water Management & Infrastructure, Railways & ICT, twelve ACEs across Africa in their focus areas, initially seven IIT's (Delhi, Roorkee, Kanpur, Kharagpur, Bombay, Madras and Hyderabad) two of the DST institutions (JNCASR & ARCI) from India are cooperating on twinning model.

Post the MoU exchange on Monday, a panel discussion is being held which shall include Dr. Mitra, Scientific Secretary to PSA, Advisor DST, World Bank Representatives, ACE 1 and ACE 2 co-ordinators, Indian National co-ordinator and two Indian Institute co-ordinators.

"We are happy that IIT Roorkee has been given the responsibility for coordinating collaboration of Indian institutions with African Centres of Excellence. It shall help strengthen Indo-African ties by addressing the common development related challenges in both India and Africa. IIT Roorkee will build on its legacy of providing capacity building programs to African countries over the last 6 decades." said Prof. Ajit K Chaturvedi, Director, IIT Roorkee.

The MoU exchange is being followed by an introduction meeting at IIT Roorkee on 12 th and 13 th of March where presentations shall be made by ACE's, each highlighting details on set up, academic programmes being offered, no. of students and teachers, facilities available,

research areas being undertaken and collaborations ACE's were interested in. Post this, the Indian institutes shall make presentations on research areas of their institute pertaining to respective themes, highlighting expertise of teachers, research and facilities available.

Each Indian institute and ACE shall hopefully be able to identify the possible topics areas for short-term as well as long-term research, research interests and potential collaborations with the visiting ACE Centers projects.

12 March

JEE Advanced 2019: Lok Sabha elections may result in change of exam date

<https://news.careers360.com/jee-advanced-2019-lok-sabha-elections-may-result-change-exam-date>



Indian Institute of Technology (IIT) Roorkee may soon announce change in the examination date of JEE Advanced 2019. The change is likely to be done after the Lok Sabha election dates were announced by Election Commission of India. JEE Advanced 2019 is scheduled to be held on May 19. However, it will be clashing with the elections which will be conducted in 7 phases across India on April 11, 18, 23, 29, May 6, 12 and 19, 2019. As of now, IIT Roorkee has not released any statement regarding the issue.

Many state level entrance examinations have started announcing change in their examination dates after the election dates were released. Following this trend, IIT Roorkee are also likely to change the examination date, since the students might get affected due to the election atmosphere.

About JEE Advanced

JEE Advanced 2019 will be conducted by IIT Roorkee and the registration process will commence tentatively in the first week of May. More information about the exam is expected to be released anytime soon by the authorities. The examination is held on a yearly basis for admissions into IITs. To participate in the examination, all candidates are required to have qualified JEE Main.

GATE 2019 Result to release by March 16 on gate.iitm.ac.in, applications for PSU jobs to begin soon after

<https://www.timesnownews.com/education/article/gate-2019-result-to-release-by-march-16-on-gate-iitm-ac-in-applications-for-psu-jobs-to-begin-soon-after/381003>

IIT-M will declare the GATE 2019 Result on or before March 16, 2019. Candidates who have appeared in the examination can check their result from the official site of GATE 2019 at gate.iitm.ac.in. Check PSU jobs

Indian Institute of Technology, Madras, IIT-M will declare the GATE 2019 Result on or before March 16, 2019. Candidates who have appeared in the examination can check their result from the official site of GATE 2019 at gate.iitm.ac.in. The examination was conducted in two sessions on February 2, 3, 9 and 10, 2019 from 9.30 am to 12.30 pm and from 2.30 pm to 5.30 pm.

As soon as GATE 2019 Result will be declared, candidates can apply for various jobs under reputed PSUs in the country where the recruitment is done through GATE score. GATE 2019 scores are used by the reputed public sector undertakings, PSUs for recruiting graduate engineers in entry level positions. Some of such kind of jobs are given below for candidates to apply.

IIT Roorkee Spearheads MoU between Govt. of India & World Bank

<https://jobs.siliconindia.com/career-news/IIT-Roorkee-Spearheads-MoU-between-Govt-of-India--World-Bank-nid-207290.html>



IIT Roorkee organized an MoU exchanging ceremony between the Govt. of India Department of Science and Technology and World Bank, at India International Centre with an aim to strengthen African Centre of Excellences in western, eastern and southern Africa. This MoU will aid them by supporting the capacity building via knowledge transfer for the students and female students enrolled in ACEs masters and PhD programs.

Prof. Ajit. K. Chaturvedi, Director, IIT Roorkee, comments, “We are happy that IIT Roorkee has been given the responsibility for coordinating collaboration of Indian institutions with African Centres of Excellence. It shall help strengthen Indo-African ties by addressing the common development related challenges in both India and Africa. IIT Roorkee will build on its legacy of providing capacity building programs to African countries over the last six decades”.

With this, the quality of postgraduate programs and offered research opportunities to students enrolled in these ACEs shall be enhanced due to research and innovation work proposed to be undertaken between faculty of ACEs and faculty of Indian Academic (seven IITs) and R&D Institutions in priority areas of the ACEs.

After the MoU exchange, a panel discussion is being held which shall include Dr. Mirtra, Scientific Secretary to PSA, Advisor DST, World Bank Representatives, ACE 1 and ACE 2 co-ordinators, Indian National co-ordinator and two Indian Institute co-ordinators. Along with that, an introduction meeting at IIT Roorkee on 12th and 13th of March where presentations shall be made by ACE's, each highlighting details on set up, academic programmes being offered, no. of students and teachers, facilities available, research areas being undertaken and collaborations ACE's were interested in.

Started in 1847, IIT Roorkee is an institute of national importance in imparting higher education in engineering, sciences, management architecture and planning. It has been ranked 3rd among the IITs by the Times Higher Education Asia University Rankings. It was converted to IIT Roorkee in 2011 and it has played a vital role in providing technical manpower to the country.

Demystifying Cancer, One Gene at a Time

<https://researchmatters.in/news/demystifying-cancer-one-gene-time>



Cancer is a group of diseases that involve abnormal cell growth and can spread to other parts of the body. But, did you know that all the cells inside a cancerous tissue are not the same? They vary in their shape, size and function, posing a challenge to be treated effectively. Prostate cancer is one such type that shows variations in the cells. In some cases, individuals suffering from this condition have an increase in the level of a protein called Serine Peptidase Inhibitor, Kazal type-1, or SPINK1. Often, doctors check for the levels of this protein in the blood or urine to diagnose prostate cancer. However, what causes this increase at the molecular level was not known until now.

In a recent study, researchers at the Indian Institute of Technology Kanpur (IIT Kanpur) have established the role of specific microRNAs in regulating the levels of SPINK1. MicroRNAs or miRNAs are small RNA molecules that target certain messenger RNAs to prevent their conversion into proteins. They play an essential role in protein synthesis and gene regulation that can sometimes cause a wide variety of diseases. In their study, published in the journal *Clinical Cancer Research*, the researchers show that increasing the levels of these microRNAs reduce the progression of prostate cancer. The research was funded by Wellcome Trust/DBT India Alliance.

The researchers experimentally introduced 'anti-microRNA' molecules into cells that resulted in the significant reduction of microRNAs. They then measured the levels of SPINK1 and found it high, proving that the microRNAs indeed regulated SPINK1.

Unlike healthy cells, cancer cells can multiply without control, invade other tissues and grow on top of one another. Understanding the mechanism behind these properties, called oncogenic properties,

of the cancer cells can help to develop effective cancer therapy. The researchers of the current study ascertained if an increase in the microRNAs affected the oncogenic properties by examining the proliferation and invasion of the cancer cells. They found a marked reduction in the oncogenic properties of these cells, indicating the effect of microRNAs.

The researchers also explored how these microRNAs inhibit the action of cancer stem cells. Akin to healthy stem cells, cancer stem cells can develop into any cell in a tumour. When present in a tumour, they can pump out chemotherapeutic drugs by producing certain proteins, thus preventing the action of the drugs. The study found that microRNAs inhibited the expression of these proteins, thereby significantly decreasing the number of cells capable of pumping out anti-cancer drugs.

The study found that cancer patients with increased levels of SPINK1, also called SPINK1 positive cancer, had increased levels of an enzyme called EZH2. This enzyme adds a methyl group to the histone proteins present in the DNA and is also responsible for healthy embryonic development. The researchers found that the enzyme reduced the number of microRNAs by adding methyl groups to the genes coding for these microRNAs, which otherwise regulate the levels of SPINK1, thus leading to its increase. However, restoring these microRNAs using specific drugs could nullify the cancer-causing ability of SPINK1, the study found.

Talking about the challenges faced during this study, Prof Bushra Ateeq of IIT Kanpur, who led the research, says, “The biggest challenge was understanding how microRNA silencing was controlled in cells exhibiting SPINK1 overexpression”. Another challenge was the lack of sufficient patients’ samples to conduct their experiments as only one in ten patients have SPINK1 positive cancer. “Due to the lack of accessibility to patient samples, and reduced frequency of SPINK1 cases, it was tough collecting and screening patient samples”, she adds.

Currently, there is no effective treatment for SPINK1 positive cancers. Based on the findings of the current study, the researchers propose a therapy, which increases the levels of microRNAs to regulate SPINK1, to help cancer patients. As a next step, they are studying the role of other RNA molecules that control the production of SPINK1. “We are also looking at other genetic aberrations that might play an important oncogenic role in driving SPINK1-positive subtype of prostate cancer”, explains Prof Ateeq.

The findings of the study provide insights into treating other types of cancers too. “The major findings of this study will not only advance the prostate cancer field but will also be valuable for treatment and disease management of other malignancies like colorectal, breast and pancreatic cancers that show increased expression of SPINK1,” concludes Prof Ateeq.

11 March

IIT Mandi’s proposals selected under SPARC initiative, to boost research

<https://www.thehindubusinessline.com/news/science/iit-mandis-proposals-selected-under-sparc-initiative-to-boost-research/article26496747.ece>

SPARC aims at improving research ecosystem at higher educational institutions

Seven research proposals from the Indian Institute of Technology (IIT), Mandi have been selected under 'Scheme for Promotion of Academic and Research Collaboration' (SPARC), an MHRD initiative.

These seven faculty-led, research projects are in areas such as Energy and Water Sustainability, Advanced Sensors, Electronics and Communication, Infectious Diseases and Clinical Research, Humanities and Social Sciences, Nano, Biotechnology and Applications, Advanced Functional and Meta Materials and Basic Sciences.

The SPARC grants will help IIT Mandi to collaborate with international universities in U.S., France, Germany, UK and Taiwan (Republic of China), world-class faculties and researchers from across the globe to undertake joint research work and to offer short term courses to the students.

"These projects will boost our efforts to establish partnerships with leading Universities across the globe. Additionally, IIT Mandi is contributing to the SPARC scheme as the nodal institution for developing collaborations with academic institutions in Germany," said Prem Felix Siril, Dean (Sponsored Research and Industrial Consultancy), IIT Mandi.

SPARC aims at improving the research ecosystem of India's higher educational institutions by facilitating academic and research collaborations between Indian institutions [overall top-100 or category-wise top-100 in NIRF (including such private institutions which are recognized under 12(B) of UGC Act)] and the best institutions in the world to jointly solve problems of national and/or international relevance.

Scientists at IIT Hyderabad Make IC Chips off Graphene for Next Gen Digital Devices

<https://www.firstpost.com/tech/science/scientists-at-iit-hyderabad-make-ic-chips-off-graphene-for-next-gen-digital-devices-6239261.html>

The popularity of digital devices has spurred the need for IC chips that are lightweight yet efficient.

The growing popularity of digital devices has spurred the need for integrated circuits that are lightweight, consume ultra-low power and are highly efficient. Technology companies are increasingly focusing on nanoelectronics for developing such devices but using nanomaterial like graphene is still challenging as there is little evidence of it showing intrinsic magnetism.

Now researchers from the Indian Institute of Technology (IIT), Hyderabad and University of Hyderabad have shown that graphene can be made magnetic with the control on electric field and temperature. They have shown this in single layer zigzag graphene nanoribbons.

Graphene, a carbon material, is the thinnest and strongest material known. It came into the limelight after its exceptional quantum properties fetched Andre Geim and Konstantin Novoselov the 2010 Nobel Prize in Physics. From then on, there are many ongoing research projects for its applications in nanoelectronics.



A Qualcomm Snapdragon 845 chip. Image: tech2

The team exploited intrinsic magnetism in this lightweight soft magnetic material, and also observed the occurrence of various magnetic phases and its transitions from one phase to another. It has designed a methodology to identify the position of the appeared magnetic phases, moving towards making 'graphene chip' a reality in future. The research team includes this author and the work was supervised by Dr Amit Acharyya and Dr Swati Ghosh Acharyya.

When your laptop or your mobile phone gets too heated up beyond the threshold, you would sometimes get panicky that chips inside the phone would have burnt out. That's why some phone manufacturers nowadays claim that their phone chipsets are based on 14 nm FinFet technology and that they have advanced thermal management. Yet, we are facing the heating issues.

Just imagine a situation where the heat generated via the chipset could be harnessed to perform computations. Researchers proceeded with this interesting thought. What if the temperature and electric field can be utilized to induce magnetism in graphene nanoribbons? There are already reported instances in the scientific literature that electric field and temperature can be individually used for controlling or inducing magnetism.

In order to make 'graphene processors' a reality, the key issue to be addressed is thermal management. To achieve this, we need a mechanism which could harness excess heat generated in the operation of gadgets to induce magnetism. Our group envisaged a processor application using a single-layer zigzag graphene nanoribbon which could potentially harness heat generated in the system, to reduce the voltage requirement and to perform computations (information propagation) using spins.

The researchers performed a computational study on pristine free standing single layer zig-zag graphene nanoribbons typically in the size of 1 to 50 nanometers to study magnetic properties. They could induce intrinsic magnetism in nonmagnetic graphene by application of electric field and temperature.

At a particular value of electric field and temperature, paramagnetism was seen and further tuning to different values led to the achievement of ferromagnetism and antiferromagnetism. It was observed that if one value (say electric field) is kept constant, the other value (temperature) can be increased or decreased to obtain different magnetic phases and vice versa. It means if one's laptop is generating high temperature, a lower electric field could achieve the distinct magnetic phases in nanoribbons.

Not limiting themselves to electric field and temperature, the researchers also built a bow-tie scheme to induce magnetism in the majority of the carbon allotropes. This thermoelectromagnetic effect and unusual behaviour of magnetism in graphene which is tunable are definitely a stepping stone towards graphene electronics. The work could pave the way for stretching the performance of integrated circuits and eventually lead to the realisation of laptops powered by graphene-based microprocessors.

The research team included Santhosh Sivasubramani, Sanghamitra Debroy, Amit Acharyya (IIT Hyderabad); Swati Ghosh Acharyya (University of Hyderabad). The study results were published in journal Nanotechnology. The research work is partially funded by Redpine Signals, Department of Science and Technology (DST), Centre for Development of Advanced Computing (CDAC) and Ministry of Electronics and Information Technology.

Ministry of shipping to set up applied research centre at IIT Kharagpur

<https://news.careers360.com/ministry-shipping-set-applied-research-centre-iit-kharagpur>

Ministry of Shipping (MoS) under its flagship Sagarmala Programme is setting up the Centre for Inland and Coastal Maritime Technology (CICMT) at IIT Kharagpur. CMICT will provide applied research and development for the inland and coastal waterways sector. This will provide real-world solutions for inland and coastal waterways transportation and provide tools and technological inputs to double the share in intermodal transport for domestic waterways freight carrying capacity.

“The Centre will focus on Ship Design for Coastal/Inland waterways, Shipbuilding Technology and Structural Design, Transport Systems & Logistics, Cryogenic Cargo Handling, Green/Renewable Energy harvesting from Coastal and Inland waters and Automation and Artificial Intelligence (AI) for Maritime Operations,” said Nitin Gadkari, Hon’ble Minister for Road Transport & Highways, Shipping and Water Resources, River Development & Ganga Rejuvenation, Government of India.

The government is encouraging the use of biofuel and clean energy to reduce pollution and fuel import costs. “In the coming years, this would prove to be critical for the country’s economic growth. Developing biofuel and world-class technologies for the shipping industry would be a significant economic and environmental contribution. IIT Kharagpur is expected to bring in the best practices of technology development and design and act as a catalyst through sponsored research with the focus towards commercialization of technologies developed” added the Gadkari.

“IIT Kharagpur is extremely delighted to be able to set up the Centre for Inland and Coastal Maritime Technology. This builds on the unique strength of IIT Kharagpur’s Ocean Engineering and Naval Architecture department supported by all the other engineering and science departments. We hope to be able to work on deep areas of technology development and indigenous technologies development as well as in areas related to energy efficiency and use of automation and AI in these areas,” said Prof. P P Chakrabarti, Director, IIT Kharagpur.

The project is of strategic long-term interests for the port and maritime sector of the country and is being fully funded under unique and innovative projects under Sagarmala. The cost of the project is Rs. 69.20 crore. The funding for CICMT is for 5 years after which revenues generated from the end users will make it sustainable.

Currently, there is no testing and experimentation facility available in the country for inland and coastal vessels for which the shipbuilders have to approach various European countries. In order to address this long felt need, a state-of-the-art Centre for Inland and Coastal Maritime Technology (CICMT) is being set up at IIT, Kharagpur. CICMT at IIT Kharagpur will provide technological support, research, testing and experimentation facility to agencies involved in inland water transport, shipbuilding, ports. etc.

CICMT setup signifies a major leap in indigenous innovation and cutting edge technology support to the Port and Maritime sector directly contributing to the Sagarmala programme and support 'Make in India' and is based on close collaboration amongst government, academic institutions and industry to make applied research relevant to day to day groundwork in the port and maritime sector.

CICMT is envisioned as a world-class state-of-the-art centre; the centre will also be a hub for the latest technology tools for the maritime sector and reduce India's dependence on foreign institutions. It will also reduce the cost of research drastically and result in cost and time savings for work in the Port and Maritime sector.

Pollution destroys 21% wheat, 6% rice crop every year: IIT-M study

<https://www.hindustantimes.com/mumbai-news/pollution-destroys-21-wheat-6-rice-crop-every-year-iit-m-study/story-FfsjiUstkx62FL7ALe5uxl.html>

The economic loss caused by the plant-damaging pollutant to the country is estimated to be about USD 5 billion for wheat and USD 1.5 billion for rice



Surface ozone is destroying around 22 million tonnes (21%) of India's wheat yield and 6.5 million tonnes (6%) rice crop every year, a multi-institute study led by the Indian Institute of Technology-Madras (IIT-M) has revealed, with Punjab and Haryana alone accounting for losses of 16% and 11% for wheat and rice respectively.

The economic loss caused by the plant-damaging pollutant to the country is estimated to be about USD 5 billion for wheat and USD 1.5 billion for rice.

Surface ozone is generated by chemical reactions between primary pollutants such as oxides of nitrogen and volatile organic compounds in the presence of sunlight.

The sources of these primary pollutants are power plants, vehicles, industries, and biomass burning.

“Like any other gas, surface ozone enters the plant leaves through its stomata as part of normal atmospheric gas exchange. Upon uptake it dissolves in the water present in the plant and further reacts with other chemicals affecting photosynthesis and thereby crop yields,” said Sachin Gunthe, principal investigator and associate professor, environmental and water resources engineering division, department of civil engineering at IIT-M.

Researchers said the findings of the study are important in view of the projected rise in manmade pollution, including surface ozone, with significant impact on the Indo-Gangetic Plain (IGP) which is an important agricultural region. A decrease in crop yield in India – also the second-most populous country – therefore will have a serious impact on its food security and economic growth.

A previous study estimated losses of 15% and 6% for wheat and rice yield, respectively based on measurements of surface ozone levels recorded mostly in urban, suburban and high altitude areas, thus not adequately accounting for ozone over rural agricultural areas which can be compensated by using chemistry transport meteorological models.

The new study attributed the increase in both crop yield and economic losses in the new study to the regional chemistry transport model WRF-Chem simulations, which factored in differing ozone chemistry in rural agricultural fields away from urban and semi-urban monitoring stations.

The study provides spatial distribution of yield losses, which could be of interest to scientific communities not limited to environmentalists, botanists and plant physiologists.

Wheat is a Rabi crop cultivated between November and April, while rice is grown during the Kharif season from June to October as well as Rabi season. Compared to wheat, crop loss for rice is less because surface ozone levels are lower as the main harvesting period is soon after the monsoon and also because rice is relatively less sensitive to ozone compared to wheat.

Although there is a permissible human exposure level for surface ozone set by the Central Pollution Control Board, there are no safe levels prescribed for plants.

For the study, the five-member team used WRF-Chem model to simulate mixing ratios for surface ozone every hour to derive accumulated ozone levels that exceed 40 parts per billion by volume (ppbv) – also referred to AOT40 – during the Kharif and Rabi seasons across various states.

Findings showed that a combination of higher crop production and coincident exposure to elevated surface ozone levels resulted in IGP region, comprising of states of Punjab, Haryana, Uttar Pradesh (UP), Bihar and West Bengal, to bear the maximum brunt of losses in wheat and rice yields. Among the leading wheat producing states, the highest crop loss of estimated 5.5 million tonnes (23%) is recorded in MP, followed by 5 million tonnes (21%) in UP every year. Both these states incur an economic loss of more than USD 1 billion each every year.

Of the major states – Punjab, UP, Bihar and West Bengal in the IGP region, and Orissa and Andhra Pradesh (AP) – that cultivate rice, Punjab incurs a maximum loss of around 1.5 million tonnes (11.5%) followed by 1 million tonnes (9%) in UP annually. These two states suffer an annual economic loss of around USD 0.3 billion each.

“There is an urgent need to conduct strategic ozone observations, especially over agricultural fields, and the development of annual regional-emission database to support policy making in India,” said Gufran Beig, co-author, Indian Institute of Tropical Meteorology, Pune. “There is also a need for aggressive cooperation between agricultural scientists and scientists involved in studies on air pollution to carry out research to develop ozone-resistant cultivars.”

10 March

IIT-KGP says its coastal maritime tech centre will reduce cost

https://www.business-standard.com/article/pti-stories/iit-kgp-says-its-coastal-maritime-tech-centre-will-reduce-cost-119031000347_1.html

The Centre for Inland and Coastal Maritime Technology (CICMT), being set up at IIT Kharagpur under the flagship Sagarmala programme of the Ministry of Shipping (MoS), will drastically reduce the cost of research, the institute said in a statement.

The CICMT will result in cost and time savings for work in the port and maritime sector, the statement said Saturday.

Union Road Transport and Shipping minister Nitin Gadkari had laid the foundation stone for the CICMT at IIT Kharagpur from Delhi on Friday.

"IIT Kharagpur is delighted to be able to set up the Centre for Inland and Coastal Maritime Technology. This builds on the unique strength of IIT Kharagpur's Ocean Engineering and Naval Architecture department supported by all the other engineering and science departments," Director, IIT KGP Prof P P Chakrabarti said in the statement.

Chakrabarti said, "We hope to be able to work on deep areas of technology development and indigenous technologies development as well as in areas related to energy efficiency and use of automation and AI (artificial intelligence) in these areas."

The project is of strategic long-term interests for the port and maritime sector of the country and is being fully funded under unique and innovative projects under the Sagarmala programme.

The cost of the project is Rs 69.20 crore and the funding is for five years.

After five years, revenues generated from the end-users will make it sustainable, the statement said.

At present there is no testing and experimentation facility available in the country for inland and coastal vessels for which the shipbuilders have to approach various European countries.

The CICMT is envisaged as a world class state-of-the-art centre to reduce India's dependence on foreign institutions.

The centre will focus on ship design for coastal/inland waterways, ship building technology and structural design, transport systems and logistics, cryogenic cargo handling, green/renewable energy harvesting from coastal and inland waters and automation and AI for maritime Operations, the statement said.

9 March

IIT-Kharagpur bags 3rd spot in management research ranking

<https://timesofindia.indiatimes.com/city/kolkata/iit-kgp-bags-3rd-spot-in-mgmt-research-ranking/articleshow/68326944.cms>

The older and bigger IITs, including the one at Kharagpur, are celebrating. The QS Subject Ranking 2019 for Business and Management Studies has just been published for management research and the IIT B-schools have bagged ranks among the top five positions. IIT-Powai, IIT-Delhi, IIT-Kharagpur and IIT-Madras have secured the second and third positions beating IIMs Ahmedabad, Lucknow and Calcutta.

IIM-Bangalore, however, remained on top. The second position has been jointly shared by IIT-Powai and IIT-Delhi while the third position was shared by IITs Kharagpur and Madras, along with the Indian School of Business and the B-school of Delhi University.

IIMs Ahmedabad and Lucknow come into the picture in the fifth position after IIT-Kanpur, which has finished fourth. IIM-Calcutta has managed a slot in the seventh position along with IISc, after IIT-Roorkee in the sixth position.

The stellar rank has coincided with the silver jubilee celebrations of Vinod Gupta School of Management (VGSoM), the business school of IIT-Kharagpur. The QS World University Rankings rates the world's top universities in individual subject areas covering 48 subjects. The rankings aim to help prospective students identify the leading schools in their chosen field.

The ranking data is compiled based on QS's global surveys of academics and employers and since this time the rankings were based on the quality of management research done in B-schools, the survey sourced research citations data from Elsevier's Scopus. The parameters included citations per research paper and the impact of the research in a particular subject area vis a vis the relevance of the subject area.

VGSoM, which was seed funded by IIT-Kharagpur alumnus Vinod Gupta, focuses on several multi-disciplinary areas of research and collaborative projects. On an average, the 25 faculty members of VGSoM annually publish 75 papers on case studies in peer reviewed international journals. The school is backed by the interdisciplinary engineering, science and mathematics platforms of IIT-Kharagpur, which present a unique opportunity to its students to pursue electives in a variety of management areas.

"Our students are from tech backgrounds and hence they pursue areas related to technology management. Keeping in line with the industry needs, we have introduced many electives in the business analytics area. We have recently introduced a micro-credit course in "personalization in retail", which caters to the changing scenario in e-commerce. Similarly, we have introduced another micro-credit course on "alternative investment and portfolio management" complementing the strength of the school in financial analytics," said Prabina Rajib, dean of VGSoM.

These courses are delivered by industry experts.

Every year, 120 students graduate from VGSOM and are immediately absorbed by the industry in the areas of operations, consulting, analytics, sales, marketing and financial domains.