Newspaper Clips
August 9-17, 2017

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Engineering graduates should not limit themselves to obvious, glamourous jobs: CM Parrikar at IIT Mumbai

http://indianexpress.com/article/education/engineering-graduates-should-not-limit-themselves-to-obvious-glamourous-jobs-cm-parrikar-at-iit-mumbai-4798075/

"The challenges of the world are becoming more and more complex by the day, and the IITs have a moral responsibility to provide enterprise and intellectual firepower to solve them," Parrikar said.

CM Manohar Parrikar insisted that the world is changing at a very fast pace and requested IIT Mumbai graduates to try their hand at politics.

Speaking at the convocation ceremony of the Indian Institute of Technology (IIT) Mumbai, Goa Chief Minister Manohar Parrikar has asked graduates to not crave for obvious and glamorous jobs. He insisted that the world is changing at a very fast pace and requested graduates to try their hand at politics.

"Do not limit yourself to a career path that is obvious and glamorous. The challenges of the world are becoming more and more complex by the day, and the IITs have a moral responsibility to provide enterprise and intellectual firepower to solve them," Parrikar said, adding that the changing world requires professionals to change at an unprecedented pace.
"I am often referred to as India's first IIT educated Chief Minister. While it is a matter of personal pride, it is a cause for concern at an institutional level. How come IITs have not become the training ground for one of the most important jobs in our nation? This needs to change. And, if you think politics is too dirty for you to enter, I would say that this is precisely why you must enter politics," he said.

"People should never cede the central role in a democratic process to politicians, and expect miracles out of them. People should be constantly and meaningfully engaged in the governance process, and this engagement should be a very matured and a pragmatic one that demands accountability and transparency on one hand, while on the other hand provides opportunity, space and support to succeed," the chief minister said. He added that people should not shy away from the governance process.

The chief minister also stressed on the importance of primary education and said that gaps in primary levels are hard to fix in the later stages of life. He said that "this weakens the very foundation of our nation."
He further cited other challenges like health care, social inclusion, women empowerment, skill development, environment and unemployment.

IIT-Madras raises Rs 55 crore from alumni for research, infra

http://timesofindia.indiatimes.com/city/delhi/iit-madras-raises-rs-55-crore-from-alumni-for-research-infra/articleshow/60095721.cms

NEW DELHI: Indian Institute of Technology -Madras (IIT-M) has created a record of sorts by raising funds to the tune of Rs 55 crore in the financial year of 2016-17.

The tech school has also managed to reverse a historic trend of 70% of the donors being from the US in the past. The majority of donors this year have been from India. The institute now aims at building a large unrestricted endowment fund to the tune of Rs 500 crore by the year 2020.

According to IIT-M's "Annual Giving Report 2016", not only the total contribution has exceeded '55 crore for the first time, the receipts from India based donors and corporate is 70%. The IIT has also managed crowd funding to the tune of `75 lakh via social media platform. The institute has also recorded a consistent increase in new donors - from 37 in 2009 to 1,827 in 2016.

The major contributions from the alumni have come for visiting and institute chairs, infrastructure, CSR projects, research projects, workshops and healthcare innovation.

According to professor R Nagarajan, dean of international and alumni relations, IIT-M, connecting with the alumni and corporates started in a structured manner in 2009. In eight years, the fund raising activity yielded significant growth - from Rs 10 million in 2009 to Rs 550 million in 2016.

Terming it as another watershed year for IIT-M, Nagarajan said: "Our alumni network and other linkages have been growing significantly in the last few years. In fact, the growth of contribution between 2015 and 2016 has been Rs 7 crores. We started connecting with the alumni in 2009, build trust, reconnect them to their alma mater and convince them that their contribution will make a real difference."

Traditionally, alumni associations in India do not engage in fund raising. Their primary responsibility is to build the network. But IIT-M has successfully made the transition of taping alumni for fund raising.

Taking a cue from the model practiced in the West, primarily from the US universities, IIT-M is now planning to raise Rs 500 crores by 2020 as endowment, "which means the principal amount will remain intact and the income generated through interest will be used for developmental activities," added Nagarajan. IIT-M Foundation has set up its office in the San Francisco Bay Area to raise endowment fund.

As reported in TOI first, among the top donors are Silicon Valley-based alumni, Anand Rajaraman and Venky Harinarayanan, who have donated $1million to create a corpus that will fund Visiting Chairs in computer science and engineering to lead research on data-driven approaches to solve important problems.

The Visiting Chairs will enhance teaching and research efforts, and help attract outstanding young faculty, students, research scholars and postdoctoral fellows to the CSE Department at the IIT.

IIT-M expels beef vigilante from hostel for 6 months

http://www.dnaindia.com/india/report-iit-m-expels-beef-vigilante-from-hostel-for-6-months-2532393

R Sooraj, a PhD scholar, was beaten up by Manish Kumar Singh on May 30 for taking part in a beef fest organised as a protest against restrictions on cattle trade

Two months after a research scholar was brutally beaten up by a fellow student for taking part in a campus beef fest, the Indian Institute of Technology – Madras (IIT-M) has banned a "right wing" student who indulged in the violent attack from entering the hostel zone and withdrawn his boarding and lodging facility for six months as disciplinary action.

However, Ambedkar Periyar Study Circle (APSC), an organiser of the fest, complained that the punishment is grossly inadequate.

R. Sooraj, a PhD scholar and member of the APSC, was beaten up by Manish Kumar Singh on May 30 for taking part in the beef fest, which was a protest against restrictions on cattle trade brought in by the Union Government. Sooraj suffered a serious injury in his eye and had to undergo a surgery for a broken cheekbone. The Chennai police booked eight IIT-M students, including Singh, under four sections of IPC. A case was also booked against Sooraj on a counter complaint filed by Singh.

The Hostel Disciplinary Committee (HDC) of IIT-M has "severely reprimanded" Manish and he can only enter the campus with prior permission of the Institute for academic reasons. The HDC also reprimanded a friend of Sooraj "for trying to flare up the situation even after the initial incident was brought under control."

An IIT-M student belonging to APSC said that the group is considering appeal against the HDC decision. "Any resident of the hostel is expelled if they are reprimanded twice. Manish was also being expelled from the hostel after being reprimanded twice — first for attacking a student legislator last year and next for attacking Sooraj. It's unfair to let him go with a lighter punishment," he said.

APSC says the 'severe reprimand' is a punishment for anyone who smokes or drinks inside the campus. "Is this the way the number one institute of India handles the case of physical attack inside its campus? Is the IIT-M administration supporting, or promoting violence inside the campus?" it asked.

IIT-Jodhpur campus to get Kendriya Vidyalaya, HRD ministry clears plans

http://www.hindustantimes.com/education/iit-jodhpur-campus-to-get-kendriya-vidyalaya-hrd-ministry-clears-plans/story-87uyTYukSH54yoCAFMuYmL.html

According to senior HRD officials, the proposal submitted by IIT-Jodhpur, was examined and approved

A Kendriya Vidyalaya (KV) will come up on the campus of the Indian Institute of Technology in Jodhpur in Rajasthan. The HRD ministry on Monday gave its nod to a KV on the IIT-Jodhpur campus.

At present, there are 32 KVs functioning on the premises of Institutes of Higher Learning (IHL) in the country.

"Today accorded approval for setting up a new #KendriyaVidyalaya under IHL sector in IIT Jodhpur campus in Rajasthan," union HRD Minister Prakash Javadekar tweeted.

According to senior HRD officials, the proposal submitted by IIT-Jodhpur was examined and granted approval.

"The sponsoring authorities have committed all required pre-requisites. The IIT-Jodhpur will bear the cost for setting up of the school as well as for future developement expenditure," an official said.

CBSE's 'Udaan': About 135 girls crack IIT JEE entrance exam
http://indiatoday.intoday.in/education/story/cbse-udaan/1/1027687.html

The CBSE 'Udaan' scheme is limited for students from families with an annual income of less than Rs 6 lakh.

With the motive to prepare girls for admission in premier engineering institutions of India based on merit, the Central Board of Secondary Education (CBSE) few years back launched a unique programme 'Udaan', a step to help young female cadre excel in career with engineering to contribute in future building of India.

The programme mainly aims at giving every possible access to the disadvantaged sections of the society in terms of education.

Udaan, through an online medium, assists the girl students in Class 11 and Class 12 and provide them with a comprehensive platform to pursue higher education in engineering.

This year, Udaan has helped 135 girl students to clear the Joint Entrance Examination (JEE)-Mains for admission in engineering colleges.

More on the scheme:

- With a vision of "New India", the scheme assists girl students with overall score of 70 per cent or above, and 80 per cent in science and mathematics stream by providing them with free of cost tutorials, mentoring support, lectures and study material to prepare for engineering entrance examinations

- Moreover, this scheme enables students with virtual contact classes organised in 60 designated cities

- Also, helpline services are provided for doubt clarification and monitoring student learning

Further, the scheme is limited for students from families with an annual income of less than Rs 6 lakh.

Here's what CBSE Chairman R K Chaturvedi said:

"The project motivates meritorious girls towards further study of science and mathematics instead of soft subjects, it hand holds them and provides necessary training. "The scheme relies on latest technology which gives ease of learning to a girl student without having to step out of her home on a daily basis. The study materials are pre-loaded on tablets and made convenient with mobile applications," said CBSE chairman R K Chaturvedi in a recent *PTI* report.

More on the report:

According to data provided by CBSE, last year, 143 girls cleared the JEE-Mains exam with the help of the 'Udaan' initiative.

"It has been seen that the participation of girl students in engineering entrance examinations as compared to boys is much lower. More than 75% of the registered candidates are boys. The idea is to mainstream girl students and prepare them for future leadership roles by removing social, economic or cultural constraints," Chaturvedi added.

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Centre plans 25% 'foreign quota' in 20 new world-class institutes
http://www.dnaindia.com/india/report-centre-plans-25-foreign-quota-in-20-new-world-class-institutes-2531212

According to officials in the Ministry of Human Resource Development (MHRD), these institutes will be selected by a group of six eminent persons who will, in turn, be selected by the UGC Chairman, the Secretary (Higher Education) and the Cabinet Secretary.

India currently attracts only 0.6 percent of overall international students studying out of their countries, the government, however, plans to change this by reserving 25% seats for international students in 20 world class institutes that it plans to create in coming years.

The 20 institutes which will be called "Institutions of National Eminence" -- 10 in private and 10 in public sector will be selected from the existing institutions only. They could be IITs, IIMs, IISc, central universities like JNU and private institutions or any other institute that is performing well. These institutions will be developed as the best institutes of India hence government wants to attract more students to these institutions.

According to officials in the ministry of human resource development, these institutes will be selected by a group of six eminent persons which will be selected by UGC Chairman, Secretary Higher Education and Cabinet Secretary. The public institutes will get a funding of Rs. 1000 crore each in a period of five years for their development and private institutions will get freedom from the regulator.

"We are aware of the fact that India does not get a large number of foreign students currently, but we want to change this scenario. Therefore we plan to reserve 25% of seats superannuary for international students, in the 20 world class institutions that we plan to develop in the coming years," said a senior official in the ministry.

According to a report by the Association of Indian Universities, a body under the ministry of HRD, only 30,423 students enrolled in various universities across India, which constitutes only 0.6 percent of the overall International students.

"Going by the policy framework that enables universities and colleges to admit foreign/NRI students to up to 15% of their sanctioned intake, India should have been having about 4.85 million foreign/NRI students studying in the country's campuses," the report said.

However, the numbers are abysmally low at only in thousands.

The international students studying in India during the academic year 2014-15 came from as many as 208 countries from across all continents, though a predominant proportion accounting for nearly 60% were found to be from Asia followed by Africa which accounted for about 20% of the total international students in India.

Americans, Europeans and the persons of Indian origin and the non-resident Indian account for only 20% of the international students studying in India, the report mentioned.

August 15

IIT prof's 'compulsory retirement' for exposing JEE flaws quashed by former president

http://www.hindustantimes.com/education/iit-prof-s-compulsory-retirement-for-exposing-jee-flaws-quashed-by-former-president/story-4J2W3toeAP0DDtIYlrWa2H.html

The HRD Ministry had last week issued orders to the IIT- Kharagpur director to comply with Mukherjee's decision

New Delhi IIT-Kharagpur professor Rajeev Kumar, who was given compulsory retirement after he exposed flaws in the IIT entrance exam, can now heave a sigh of relief, courtesy former President Pranab Mukherjee.

Days before he demitted office last month, Mukherjee had ordered setting aside of the penalty imposed on Kumar.

The HRD Ministry had last week issued orders to the IIT- Kharagpur director to comply with Mukherjee's decision.

"I am directed to refer to the appeal dated September 3, 2014, filed by professor Rajeev Kumar and to say that the President of India, in his capacity as the Visitor of IIT- Kharagpur,...has set aside the penalty of compulsory retirement imposed on him," read the HRD Ministry order.

Kumar, when contacted, refused to comment on the issue.

IIT-Kharagpur had suspended Kumar for "misconduct" in May 2011 -- the same year the Supreme Court had lauded him as a "unsung hero" for his efforts to reform the IIT Joint Entrance Examination (JEE), which has since been re-christened as JEE Advanced.

He was accused of "damaging the reputation of the institute" by levelling allegations on issues ranging from irregularities in the purchase of laptops to rampant copying by students during examinations.

The institute set up a probe panel that found him guilty. In 2014, the IIT decided to hand him compulsory retirement.

Kumar, who alleged that the panel was biased, moved the Delhi High Court and obtained a stay on the IIT's decision. He also appealed to the President requesting that the decision be quashed.

The appeal against the retirement order has been pending in the Delhi High Court.

August 14

IIT Hyderabad records 100% placement, Rs 18.8 lakh highest salary offer

http://www.ndtv.com/education/iiit-hyderabad-records-100-placement-18-8-lakh-highest-salary-offer-1737185

Students of IIT Hyderabad received salary offers ranging between Rs 13.4 and Rs 18.8 lakh per annum.

The BTech graduates of the International Institute of Information Technology (IIIT-Hyderabad) received salary offers ranging between Rs 13.4 and Rs 18.8 lakh per annum.

Besides, the graduates of the master's programmes in IT got average salary offers between Rs 14 lakh and Rs 17.7 lakh per annum, the institute said today in a statement.

As many as 116 companies registered for conducting placements and 100 per cent of the students secured jobs, it said.

"IIIT-Hyderabad yet again secured 100 per cent placement. Our graduates from the master's programmes in IT received job offers from leading companies with average salaries for various programmes ranging between Rs 14 lakh and Rs 17.7 lakh per annum," the institute said.

"The BTech graduates received job offers with average salaries for various programmes ranging between Rs 13.4 lakh and Rs 18.8 lakh per annum. Our students are among the most sought after by the technology and product industry," it claimed.

IIIT-Hyderabad yesterday held its 16th convocation ceremony where 473 students graduated, with a record number of 84 research students, including 16 PhDs, said the statement. G V Prasad, the CEO of Dr Reddy's Laboratories, was the chief guest at the occasion.

Prof Raj Reddy, the chairman of the governing council of IIIT-Hyderabad, presided over the convocation ceremony.

MHRD to hold plans of replacing UGC, AICTE with single regulator

http://digitallearning.eletsonline.com/2017/08/mhrd-to-hold-plans-of-replacing-ugc-aicte-with-single-regulator/

The Ministry of Human Resource and Development (MHRD) is likely to hold the idea of replacing University Grants Commission (UGC) and the All India Council for Technical Education (AICTE) with a single higher education regulator.

The Government's plan to introduce Higher Education Empowerment Regulation Agency (HEERA) is in limbo. The agency was aimed to eliminate overlaps in jurisdiction and remove irrelevant regulatory provisions.

HRD Ministry and Niti Ayog were earlier working together to bring all technical and non-technical education institutions under one umbrella but since a long time there has been no progress on the same. Minister of State for HRD Upendra Kushwaha raised the issue in Parliament last week where he said, "No such proposal is under consideration at present, tomerge the University Grants Commission (UGC) and the All India Council for Technical Education (AICTE) into a single higher education regulator."

Earlier, the ministry officials claimed a detailed blueprint of the proposed regulator and its legislation is being worked upon. According to the officials, multiple regulatory bodies led to excessive and restrictive regulation and hence contributed to the lack of institutional autonomy.

Various committees set up by previous governments proposed and supported the idea of single higher education regulator. The National Knowledge Commission (2006) had recommended an independent regulatory authority for higher education, the Committee on Renovation and Rejuvenation of Higher Education (2009) had also advocated an apex regulatory body by converging multiple agencies in the field of higher education.

The UGC Review Committee in 2014 had also recommended the commission be replaced with an apex institution named National Higher Education Authority.

Modi's HEERA encounters roadblock: UGC, AICTE might remain intact
http://indiatoday.intoday.in/education/story/modi-heera-ugc-aicte-replacement/1/1025554.html

Last week, during the parliament session, of State for HRD Upendra Kushwaha said no proposal has been considered at present in this regard.

The much awaited Education Empowerment Regulation Agency (HEERA) has encountered a roadblock set by the Human Resource Development Ministry (HRD).

As of now, the plan set by the government to replace the University Grants Commission (UGC) and the All India Council for Technical Education (AICTE) with a single higher education regulator has been put on hold.

Here's why:

Last week, during the parliament session, of State for HRD Upendra Kushwaha said no proposal has been considered at present in this regard.

"No such proposal is under consideration at present, tomerge the University Grants Commission (UGC) and the All India Council for Technical Education (AICTE) into a single higher education regulator," said Upendra Kushwaha.

On being asked to comment on the same, HRD officials remained tight-lipped.

What all claims did the ministry make earlier?

- Earlier, when the government introduced this plan, the HRD ministry officials claimed that a detailed blueprint of the proposed regulator and its legislation is being worked upon

- Moreover, the concerned officials said it was felt that multiple regulatory bodies led to excessive and restrictive regulation and hence contributed to the lack of institutional autonomy

Having a single higher education regulator not a new idea:

As reported by *PTI*, the idea to have a single higher education regulator is not a new one, but has been recommended by various committees set up by previous governments. While the National Knowledge Commission (2006) had recommended an independent regulatory authority for higher education, the Committee on Renovation and Rejuvenation of Higher Education (2009) had also advocated an apex regulatory body by converging multiple agencies in the field of higher education.

Moreover, the UGC Review Committee in 2014 had also recommended the commission be replaced with an apex institution.

August 12

Tata Steel Advanced Materials Research Centre established at IIT Madras
http://indiaeducationdiary.in/tata-steel-advanced-materials-research-centre-established-iit-madras/

Madras: The Tata Steel Advanced Materials Research Centre (TSAMRC) was launched today (11th August 2017) at Indian Institute of Technology Madras (IIT Madras) Research Park.

Mr Anand Sen, President (Total Quality Management and Steel Business), Tata Steel Limited, inaugurated the Centre in the presence of Prof. Bhaskar Ramamurthi, Director, IIT Madras, Dr Gopichand Katragadda, Group Chief Technology Officer, Tata Sons, Prof. Krishnan Balasubramanian, Dean, Industrial Consultancy and Sponsored Research, IIT Madras, faculty members and officials from IIT-Madras and Tata Steel Limited.

Speaking at the occasion, Mr Sen, said, "The best brains should be involved in innovation in manufacturing. There is a large space and need for innovation in the manufacturing sector and I'm looking forward to exciting times ahead."

This was a good start to an exciting venture. This Centre should be fully operational by December this year, he added.

Speaking during the inaugural function, Prof. Ramamurthi said, "We should be driving the technological innovations as there is a lot of potential for new technologies in the country. The Computational Software should be leveraged to see how an existing pathway, being followed globally, can be replaced by a better, more efficient and economical pathway. The Tata Steel Advanced Materials Research Centre will be equipped with computational software."

Speaking later, Dr Katragadda said, "Now, it takes nearly 20 years for a new material to be created and enter the market. The industry will benefit a lot, if this time can be reduced." The Computational Centre at TSAMRC will definitely help accelerate the timeline for a product to go to the market.

Tata Steel had signed a Memorandum of Understanding with IIT-Madras on August 16, 2016 to set up the Research Centre. This initiative comes in the light of Tata Steel being entrusted with the responsibility of developing a long-term strategic roadmap in the area of advanced materials.

It is intended to attract project proposals from IIT-Madras with potential breakthroughs using Advanced Materials and new processing techniques. The Centre also aspires to create a world-class ecosystem that would enable participation of

leading universities from across the world. The students and faculty members working on projects at TSAMRC would also be exposed to the manufacturing world of not only Tata Steel also with other group companies of Tata.

S. Ramaprabhu, Dept. of Physics, Prof. Susy Varughese, Dept. of Chemical Engineering, Prof. P. Abhijith Deshpande, Dept. of Chemical Engineering, Prof. C. Lakshman Rao, Dept. of Applied Mechanics, Prof. Debdutta Ray, Dept. of Electrical Engineering, and Prof. Soumya Dutta, Dept. of Electrical Engineering, were among the faculty from IIT-Madras who took part in the function.

Internet of Things-enabled ultrasound scans: IIT Hyderabad

http://www.thehindu.com/sci-tech/science/internet-of-things-enabled-ultrasound-scans-iit-hyderabad/article19481327.ece

Remote access it is crucial that internet-enabled scanning devices do a preliminary classification of images, and this calls for intelligent software.

The algorithm can tell kidney cysts from stones

A team of researchers from IIT Hyderabad has been working to use the Internet of Things (IoT) to accurately diagnose kidney and liver disorders with the help of ultrasound scanning devices. What started off as a project to develop a system that will validate the data and do a preliminary scanning of the organ — whether the organ is normal or not — has now developed into technology that can identify kidney stones and cysts and also grade a "fatty liver" classification. The research has been published in *Ingénierie et Recherche Biomédicale* (IRBM) .

Usual handicaps

Diagnosing problems using Internet-enabled scanning systems is fraught with many disadvantages. In the traditional way of processing data, after the patient is scanned, a radiologist usually picks out the most relevant portions or even captures screenshots and makes these available for diagnosis by the specialist.

In the IoT-enabled remote scanning, if the scans are uploaded to the cloud without being first analysed, there is a possibility that the doctor sees a huge amount of data, which they may find difficult to interpret. Sometimes, as Prof. P. Rajalakshmi of the Electrical Engineering Department at IIT Hyderabad who has led the research comments, there is even no organ image within the field of view in the scans uploaded to the web. Therefore, it is crucial that internet-enabled scanning devices must work more intelligently and do a preliminary classification of images.

This was the starting point of the research in 2014. The team aimed to have software which would view the images and classify the kidney images into "normal" and "needs treatment." The research however, went beyond this goal and they now have a deep-learning algorithm which can differentiate between cysts and stones in the kidney images. In fact, they also have trained the software to look at the liver images and classify fatty livers into different grades through an automated recognition process.

"The greatest difficulty was in finding data to train the system. People do not like to share their ultrasound images, hence the data set initially available was really small and not sufficient to cover all the possible patterns [which is necessary for the software to make a good diagnosis]," says Prof. Rajalakshmi. The team was helped in this by two healthcare centres in Hyderabad.

Platform independent

The algorithm that the researchers have developed can be integrated into any platform and is flexible from the point of view of the hardware being used. They have also included a cloud-based authentication feature that allows identification of the operator by means of iris and fingerprint scans.

"There's a need to collaborate with hospitals and with the government and integrate this algorithm with devices. This will make it possible to extend medical support into the rural areas," she says.

IIT Guwahati develops silk patch to repair damaged heart tissue

http://www.thehindu.com/sci-tech/science/iit-guwahati-develops-silk-patch-to-repair-damaged-heart-tissue/article19481205.ece

Crucial support "The 3D patch that we fabricated can be implanted at the site of damage to help the heart.

The 3D patch has high cell density, a foremost requirement for heart tissue

Scientists at the Indian Institute of Technology (IIT) Guwahati have fabricated a 3D cardiac tissue patch using silk protein membranes seeded with heart muscle cells. The patch can potentially be used for regenerating damaged heart tissue.

"The 3D patch that we fabricated can be implanted at the site of damage to help the heart regain normal function. It can also be used for sealing holes in the heart," says Biman Mandal from the Department of Biosciences and Bioengineering, IIT Guwahati, who led the research.

Cardiac tissue gets permanently damaged when oxygen supply is reduced or cut off during a heart attack. The damaged portion gets scarred and does not contract and relax, which over time leads to a change in the shape of the heart and reduced pumping capacity.

While currently available grafts fail to mimic the structure and the function of the native heart tissue as well as maintain high cell numbers, the patch developed by the IIT Guwahati researchers scores over these on many counts. The results were published in the *Journal of Materials Chemistry B.*

The team led by Prof. Mandal tested both mulberry *(Bombyx mori)* and non-mulberry *(Antheraea assama)* silk to fabricate the membrane. Silk proteins extracted from raw silk were used for fabricating the membrane by using a mould. The nano-groove structure on the mould was transferred to the silk membrane and this helped guide the heart muscle to grow in a linear fashion and parallel to each other thus mimicking the heart tissue structure. "We focused on developing a silk-based tissue engineered membrane which will allow the cardiac cells to grow while maintaining the structural anisotropy," says Prof. Mandal.

Seeding the silk

Heart cell lines and cells taken from the heart tissue were used for seeding the silk membrane. The presence of certain cell-binding protein sequences (RGD motifs) and greater surface roughness of the non-mulberry silk, which is endemic to north-east India (locally called muga silk), facilitated better anchorage and cell binding. "The cells grew and proliferated, filling the membrane 7-10 days after it was seeded," he says.

As heart tissue continuously contracts and relaxes, the engineered tissue should have good elasticity. "The muga silk exhibited good elasticity and mechanical strength comparable to native heart tissue as we used only 2% silk proteins to make the membrane," says Shreya Mehrotra, Department of Biosciences and Bioengineering and first author of the paper. "When tested on mice, we found the muga silk was immunologically compatible and hence not rejected by the immune system," she adds.

Making a 3D patch

The single membranes with proliferating cells were then stacked one over the other to form a 3D patch. "In 5-6 days, the cells present on top of the membrane bound to the membrane above it leading to the layers sticking to each other," Prof. Mandal says.

"Stacking the membranes to form a 3D patch overcomes the drawbacks of current scaffolds used for cardiac tissue engineering in terms of creating a high cell dense anisotropic patch, a foremost requirement for this tissue," he stresses.

The silk in the patch supports the cells till the newly formed cardiac tissue integrates with the native heart tissue and degrades once the integration takes place. "This method is better than the conventional direct delivery of cardiac cells to repair the damaged portion of the heart as the cells get washed out from the injected site," says Ms. Mehrotra.

The team will carry out animal studies in collaboration with AIIMS.

August 11

Why IITs, IIMs Are Reaching Out to Indian Diaspora
http://littleindia.com/iits-iims-reaching-indian-diaspora/

IIT Gandhinagar has received endowments from NRIs worth Rs 30 crore in the last few years.

The new IITs and IIMs are reaching out to the Indian diaspora in a bid to connect with candidates that can work as faculty, to find universities to collaborate with, and meet other needs of the institution such as project funding. Institutions like IIT Gandhinagar, IIT Hyderabad and IIT Ropar are reaching out to a significant number of Non-Resident Indians in countries like the UK, Canada, the US, Singapore and Australia. These institutions are looking for ways to build brand equity in these foreign locales, besides increasing their reach.

"We don't have an alumni base as strong as the older Indian Institutes of Technology (IITs) but you cannot wait for 40 years to reap that benefit… so you must innovate and reach out to new constituents," Sarit K Das, director of IIT Ropar in Punjab, said, according to Mint. "Indian diaspora can be (almost practically) your alumni base. What alumni do for older institutions, diaspora can do it for you."

This move is also seen as a way for the newer institutions to counter poor placement records and garner attention from companies to recruit students.

The benefits

Sudhir Jain, director of IIT Gandhinagar, told the publication that he got good support from the diaspora — particularly in the US and Japan, and that several tie-ups for students' research and recruitment happen because of NRIs.

"In the last few years, we have received endowments worth Rs 30 crore, and a sizable portion of them are from the diaspora community. As we engage with them more, we believe more will follow," he said.

Without the baggage that the older institutions carry, the newer institutions can opt for fresher strategies. Harivansh Chaturvedi, alternate president of Education Promotion Society of India, a federation of education providers, pointed out how India is a leading recipient of remittances from NRIs. Top institutes like the IIMs and IITs should definitely target them for some contribution, he feels. India received about $62.7 billion worth of remittances in 2016, according to World Bank data.

International standing

The idea behind the outreach programme is to see where Indian universities stand in international rankings as well. "We have found that in international ranking, there is perception about these institutes. So many times, real quality does not reflect in ranking," Union Human Resource Development minister Prakash Javadekar said, the Telegraph reported. "To address that, we have decided to implement outreach programmes with the alumni Indian diaspora for their active participation and have more foreign students, foreign faculty and exchanges with foreign countries. All these will help in creating the right perception about the Indian institutes and then we will get the right place in international ranking too."

However, the move has raised a few eyebrows. Critics say that there isn't going to be much of an impact. The diaspora, critics claim, have gotten subsidized education at these prestigious institutes by paying only Rs 90,000 per year when it costs about Rs 3.4 lakh to the government.

Then, critics say, they abandoned the motherland and are not even a significant part of the total foreign direct investment. Argues a Scroll piece, "A report in the Economic Times shows that out of the total remittances of $70 billion to India, the remittances from IITians who go to developed countries is much lower than the remittances from the Middle East to the state of Kerala. Most of the Malayalis in the Gulf are blue-collar workers, not IIT engineers."

However, another report published in Economic Times counters the general perception of critics by highlighting that not even 200 of the approximate 10,000 students from different IITs in India went abroad for work last year.

August 10

IIT-Madras to host dedicated Silicon Detector R&D and Application Centre
https://telanganatoday.com/iit-madras-silicon-detector

IIT-Madras hosted an India-CMS collaboration meeting from August 4 to August 6, with more than 80 delegates taking part.

Prof Bhaskar Ramamurthi, Director, IIT Madras, with delegates of the India-CMS collaboration meeting held in IIT-Madras.

Hyderabad: The Indian Institute of Technology Madras is going to host a dedicated Silicon Detector Research & Development and Application Centre, a statement from the institute said.

It is intended to aid in upgrading the Compact Muon Solenoid (CMS) Detector.

The CMS Experiment, known worldwide for the discovery of Higgs boson, is one of the largest international scientific collaborations in history, involving more than 3,500 scientists, engineers, and students from 202 institutes in 47 countries.

IIT-Madras hosted an India-CMS collaboration meeting from August 4 to August 6, with more than 80 delegates taking part. Such a meeting was held for the first time.

Prof Bhaskar Ramamurthi, director of IIT Madras, inaugurated the meeting on August 5, along with Prof V Subramanian, acting head, Department of Physics.

During the meeting, all collaborating institutes reviewed the progress till date and discussed the plans for future activities in the CMS Experiment.

IIT-Madras joined India-CMS as well as the CMS collaboration at Geneva, Switzerland, as a full member in 2014, becoming the first and only IIT with such membership.

IIT-Madras is offering a summer internship at CERN for undergraduate students since 2015.

According to Prof Prafulla Kumar Behera, who leads CMS initiative in the Institute, "The main purpose of this centre is to effectively work with Indian collaborating institutes to build a '2,000 silicon detector module' that will be part of CMS detector at CERN."

The estimated cost of setting up the centre is about Rs 6 crore. Around half of the project cost is expected to be funded by CERN, with the rest coming from the Department of Science and Technology, Government of India.

The support of IIT-Madras alumni would also be sought in this undertaking. The modalities are still being worked out.

The Centre will purchase advanced machine tools, such as 6-axis micro-abrasive waterjet machine tool, to be part of the laboratory. They will be first of their kind in India and would help the country's manufacturing sector with cutting-edge research.

"It would also contribute to Prime Minister Narendra Modi's 'Make-in-India' campaign, as these advanced equipment will boost the manufacturing sector in India. The Advanced Characterization Facilities for Silicon Sensor will also be part of this Centre," says Prof Prafulla Kumar Behera.

The funds are expected to be released by early 2018 and the Centre is slated to be operational by end of 2018.

The Silicon sensor has several potential spinoff applications such as coming up with better medical imaging that will aid the Indian healthcare sector.

The IIT-Madras-CMS Group will have three faculties, one postdoctoral student, six doctoral students and six Undergraduate/Master students. Once the laboratory becomes operational, several technical staff would also be recruited.

IIT-Madras has two of its departments (Physics and Mechanical) working for CMS detector upgrade at the moment. There is a possibility of others, such as the Departments of Computer Science and Engineering, Electrical Engineering, Metallurgical and Materials Engineering, joining this centre. They would contribute to detector upgrade as well as data mining activities at CERN.

India became an associate member of CERN in 2016 and it opens an opportunity for the country to be a collaborator at CERN.

Indian physicists have been part of the research collaboration from the beginning and contributed to the detector development, computing and data analysis.

India-CMS collaboration has nine full member institutes (BARC, TIFR, SINP, NISER, PU, DU, IIT Madras, IISc and IISER Pune) and has about 45 faculties and same number of Ph.D students.

Indian Scientists Devise Novel Method to Extract Silver from Paddy
https://sputniknews.com/asia/201708101056341772-indian-scientists-silver/

Researchers claim that as much as 15 mg of silver can be extracted from a kilogram of the Garib-sal variety of rice which accumulates an unusual quantity of the noble metal in its aleurone layer.

New Delhi (Sputnik) – Indian scientists have rediscovered a rice variety that accumulates an unusually high quantity of silver in the grains. The test conducted by researchers from the Indian Institute of Technology (IIT) could become a novel method of bio-extraction of silver metal.

"Our study of 505 native rice landraces showed that nine of them accumulate silver at a high concentration when grown in the same soil. Among these, a medicinal rice landrace from West Bengal, Garib-sal was found to accumulate silver at an especially high concentration in the grains. Cultivation of Garib-sal rice in three successive years in Basudha farm in the rice growing period of June–October confirmed that for the same concentration of silver in the soil (~0.15 mg/kg), Garib-sal accumulates it in the grains to the extent of ~15 mg/kg," reads the report published in science journal — ACS Sustainable Chemistry & Engineering.

"The rice variety has the ability to accumulate silver about 100 times more than any other rice. It is possible to extract 14.60 mg per kg of silver from the rice using a cheap and simple chemical method. This is a unique way of extracting silver through agriculture. With further research, it may be possible to find better ways of enhancing the bioaccumulation of silver," Prof. T. Pradeep told The Hindu.

To detect the location of deposition of silver in the grains, scientists had performed secondary ion mass spectrometry where it is revealed that silver is concentrated in the aleuronic layer of the rice bran. Its concentration decreases in the sub-aleurone and becomes negligible in the endosperm. "Accumulation of silver does not alter the grain morphology and chemical characteristics. The metal may be extracted from the bran after milling of the rice, thereby causing no loss of the foodstuff," the research paper claims.

Garib-Sal was once grown in West Bengal and was recommended as a diet for patients with gastrointestinal infections and the presence of silver in rice might have had a therapeutic effect by killing pathogenic microbes in the human gut.

More funds, less cow dung: Angry Indian scientists' message to the Modi government

https://qz.com/1050040/more-funds-less-cow-dung-angry-indian-scientists-message-to-the-modi-government/

Suresh Govindarajan spent Wednesday (Aug. 09) evening walking the length of Chennai's Elliot's Beach in silent protest.

The professor of physics at the prestigious Indian Institute of Technology Madras (IIT-M) wasn't alone. A few hundred students, academics, scientists, and engineers, too, braved the rain, held up placards, and marched along the beachfront.

"There is a subtle diversion of funds from science to what is considered as possible science," said Govindarajan, a tall theoretical physicist, who studied at IIT-M and the University of Pennsylvania. "They (the government) are willing to give money for various research on the cow or something, but even at a place which is well-endowed, like IIT, we are facing issues…"

Some 2,000 kilometres away, in India's capital city of New Delhi, 150-odd students, teachers, and engineers marched over two kilometres from Mandi House to Jantar Mantar amidst peak traffic on a sultry evening. Their demands were the same as their counterparts in Chennai: an increase in funding for real scientific research in India and a stop to the practice of mixing Hindu mythology and science.

In all, the scientific community staged protests—the first such nationwide demonstration in recent times—in 26 other cities, including Mumbai, Thiruvananthapuram, and Bengaluru. The organisers claim that some 10,000 protestors took to the streets, including nearly 1,000 scientists, partly inspired by the March for Science, a series of worldwide rallies held on April 22, Earth Day.

"This isn't a political message," said Soumitro Banerjee, a professor at the Indian Institute of Science Education and Research (IISER), Kolkata, and a member of the Breakthrough Science Society (BSS), an association of scientists that helped organised the protest. "The problem is that there is propagation of unscientific views and superstitions, sometimes that is even getting support from the governmental quarters…there was a lot of displeasure among the scientific community about this."

Funding constraints

Over the past few years, India's spending on science and technology, as a share of its GDP, has remained at a paltry 0.8%.

Much of that is spent on space technology, leaving little for other areas, particularly fundamental research. The protesters who took to the streets on Wednesday want that to change, seeking an increase in government funding to

more than 3% of GDP—on par with many developed economies. Even among the BRICS nations, Brazil, Russia, and China spend over 1% of their GDP towards scientific research.

In 2015, the Modi government had asked organisations involved in scientific research to start "self-financing" projects, which meant they would have to raise their own funding for research. This was part of the 2015 Dehradun Declaration that directed government-controlled laboratories and research institutes in India to "develop a revenue model in a business-like manner with a clear cost-benefit analysis" andbecome self-financing in two years. But, without budgetary support, India's scientific research organisations seem to be struggling.

For instance, the Council of Scientific and Industrial Research (CSIR), India's largest research and development organisation that runs some 37 labs across the country, is facing a severe cash crunch. Despite repeated pleas, CSIR has been unable to secure more funding from the Modi government. Meanwhile, CSIR staff were reportedly barred fromattending the March for Science by the organisation's director.

"There is a loss of recognition of the significance of fundamental research in India," said Dhruv Raina, a professor at Jawaharlal Nehru University and one of India's leading science historians who attended the protest in New Delhi. "While a focus on vocational education is important, the research capabilities developed over the last 70 years cannot be undermined. The clamour for a knowledge-based society has grown, the conditions required for its sustenance seems to be found wanting due to a shift in policy at the national and global level."

Kill pseudo-science

The nationwide protest was also a reaction to the government's obsession with mixing up religion and science.

Since 2014, when the Modi government took charge, various ministers and party lawmakers have tried to combine religious mythology with science to show the advanced state of Hindu thought. These include specious claims that ancient Indians built inter-planetary aircraft and practiced cosmetic surgery—none less than the Indian prime minister cited the elephant-headed Hindu god, Ganesh, as an example.

Moreover, the growing obsession over cows and the government's push to study the benefits of *panchagavya*—a mixture of five cow products: urine, dung, milk, ghee, and curd—has also caused concern. In fact, the Indian Institute of Technology Delhi has received 50 proposals from top research institutions to explore the benefits of the *panchagavya*.

"There has been an acceleration in pseudo-science in recent times," said Banerjee of IISER. "For science to thrive, people have to not believe things that they are told without evidence. A society must always question. If that doesn't happen, it is extremely worrisome." But that ability to question has increasingly come under threat. For instance, between 2014

and 2015, three of India's most prominent rationalists—Govind Pansare, Narendra Dabholkar, and MM Kalburgi—were killed by unknown assailants.

"An environment of anti-science is developing in various forms," said TR Govindarajan, a professor at the Institute of Mathematical Sciences in Chennai. "For example, people are suggesting that during the lunar eclipse, don't eat anything or drink anything…we thought those days were gone, but now it is coming back."

IIT Delhi starts day care centre for children of faculty, scholars

http://www.hindustantimes.com/education/iit-delhi-starts-day-care-centre-for-children-of-faculty-scholars/story-PVEIcwNidz0caBeIJUusBN.html

IIT Delhi will allow 40 children aged between 18 months and eight years to be admitted to the centre at a time.

Indian Institute of Technology (IIT) Delhi, has started a day care centre to support researchers and faculty by taking care of their children while they work on the campus.

The institute said 40 children can be admitted to the centre at a time. Children aged between 18 months and 8 years will be admitted.

"The Centre is operational from 9.30 am to 6.30 pm and is divided into three slots — half day, full day and afternoon. It caters to play group and nursery kids," IIT, Delhi said in a statement.

Technology has also been brought into play here with parents using an app-based service through CCTV to keep and eye on their children as they spend time at the centre.

The curriculum revolves around social and emotional development, cognitive development and developing creative arts.

Naresh Varma Datla assistant professor in the department of mechanical engineering said, "we are extremely happy that this has started. The centre has a caring and child friendly environment".

Centre director Raina Jaggi said the main focus was to provide a stable and stimulating environment to children.

August 9

India vulnerable to cyber crime, needs to upgrade tech: IIT-Kanpur study

http://www.hindustantimes.com/tech/india-vulnerable-to-cyber-crime-needs-to-upgrade-tech-iit-kanpur-study/story-oN8PTQC38hcWuLjjN7el7K.html

Cyber crimes had been rising constantly till 2013, when 71,780 such cases were registered in India. The number grew to 1.49 lakh in 2014 and three lakh in 2015, finally doubling in 2016.

A study conducted by IIT-Kanpur experts has revealed an alarming rise in cyber crimes across the country in the last one year.

Senior scientists Manindra Agarwal and Sandeep Shukla, the brains behind the exercise, pointed out that the country needs to upgrade its defences "without any delay" because the risk of cyber crime has doubled. They have submitted the study to the central government, and briefed the parliamentary committee on finance in this regard.

The study, which recommended the expedition of the Computer Emergency Response System (CERS) project for the financial sector, said: "Almost all financial institutions, banks and online transactions are vulnerable to cyber crime. Digital wallets like Paytm and BHIM, which gained prominence after demonetisation, were found unsafe during the research."

The CERS project was proposed in the Union budget unveiled by the central government.

The experts said as the government was pushing for Aadhaar-based financial transactions, checking the unauthorised use of its database should be a priority. They termed recent leakages of Aadhaar data as a matter of concern.

Cyber crimes had been rising constantly till 2013, when 71,780 such cases were registered in India. The number grew to 1.49 lakh in 2014 and three lakh in 2015, finally doubling in 2016.

The report stated that the websites of financial institutions and government establishments were particularly vulnerable to attacks. "The danger of cyber crime is looming large on the defence, education and telecom sectors. Around 164 government websites were hacked in 2015," it added.

Agarwal and Shukla noted that while the government initiated a number of post-demonetisation programmes aimed at digitising the economy, the cyber-security centres set up by the Reserve Bank of India were found lacking on several fronts.

The Reserve Bank of India has often approached premier technical institutes, including IIT-Kanpur, for expert opinion on cyber centres. However, they are unable to engage on cyber-security research due to lack of experts. Sources said there were just three to four cyber-security experts across all the IITs in India, and two of them were based at the Kanpur facility.

"The government and private sector partnership system in cyber security also lacks experts. Such partnership centres require updated technology and highly skilled cyber experts," the study said,

advising Indian banks and government agencies to engage top cyber-security experts for creating a layer of advanced protection that was missing in most financial institutions.

The report also pointed out that the Computer Emergency Response Team-India, formed to handle cyber exigencies, is in need of an immediate revamp because it does not have sufficient inter-disciplinary connections.