



NEWS CLIPS

February 23-28 & 1 March, 2019

Highlights of the Week@IITD

IITs, DU, JNU on QS list of global top 100

March 1, 2019 <https://timesofindia.indiatimes.com/india/iits-du-jnu-on-qs-list-of-global-top-100/articleshow/68210390.cms>

The Indian Institute of Technology, Bombay figures among the top 100 institutions in engineering and technology and art and design (51-100) category in the latest subject-wise QS rankings announced on Thursday. The other institutions from India to have made it to the top 100 in various subject lists include IIT, Delhi, Madras and Kharagpur as well as Delhi University, Jawaharlal Nehru University and the Indian Institute of Science, Bangalore.

Quacquarelli Symonds, which is one of the academic ranking agencies, released the lists of the global ranking of university across 48 different subjects ranging from art and design to engineering disciplines.

While institutions from the US dominate the list with 28 first ranks, followed by the UK featuring on top in 13 disciplines, most of the lists didn't have Indian institutions in the top 100.

The list across streams and subjects has been dominated by institutions such as Massachusetts Institute of Technology, Stanford University and Harvard University from US or University of Oxford and University of Cambridge from the UK.

IIT, Bombay is the top ranked Indian institution in engineering and technology at 53, with two more IITs (Delhi and Madras) finding place at 61 and 95 respectively in the same list.

IIT, Bombay and Delhi find mention with both standing in the 51-100 bracket in the list for best global institutions for civil and structural engineering. They also feature among the top 100 in computer science and information systems, while IIT Bombay and IISc, Bangalore share the 51-100 bracket in chemical engineering.

The three IITs (Bombay, Madras and Delhi) also featured among the top 100 in mechanical engineering. In mineral and mining engineering, IIT Bombay stands 38th while IIT Kharagpur is at the 47th position. IIM Bengaluru is the only Indian institution which figures in the list of the top 100 places for business and management studies.

While no Indian institutes could make it to the top 100 in the category of social science and art and

humanities, in the sub-category of development studies Delhi University has been placed 37th. DU also figures in the top hundred in anthropology. Another central university which figures in the list is JNU, which has been ranked in the 51-100 bracket in both sociology as well as history.

However, in key subjects such as accounting and finance, agriculture and forestry, anatomy and physiology and English literature, economics and mathematics, no Indian institution made it to the top 100 subject-wise list.

"We are happy with the results, though it is not a surprise. Computer science and chemical engineering have always been our strength. We will strive to improve in other subjects as well," said Professor Swati Patankar, dean (international relations, IIT, Bombay).

With this, as a national higher education system, India is now at 21st position globally, with 20 other national systems having more top-200 departments

March 1, 2019 https://www.business-standard.com/article/current-affairs/more-indian-varsities-in-qs-world-university-rankings-by-subject-2019-119022801096_1.html

Indian varsities improved their performance in the latest Quacquarelli Symonds (QS) World University Rankings (WUR) by Subject 2019 with 22 more departments being ranked among top-200 over previous year.

The latest QS WUR by Subject 2019 which ranks departments of universities across various subject categories saw 89 Indian departments at Indian Institute of Science (IISc) Bengaluru, Indian Institutes of Technology (IIT), Indian Institutes of Management (IIMs) and University of Delhi (DU), among others being ranked among global top-200 list.

With this, as a national higher education system, India is now at 21st position globally, with 20 other national systems having more top-200 departments. The subjects covered under the ranking range from computer science & information systems, chemistry, physics & astronomy, electrical & electronic engineering, mechanical engineering, chemical engineering, and mathematics, among others.

Of the total 197 departments at Indian varsities being ranked, 59 improved their position, with only 16 facing a drop. What's more, three Indian universities saw at least one department being ranked among top-50 globally subject-wise.

The three top-50 subject offerings from India were achieved by the University of Delhi at 37th position for development studies, becoming India's highest-ranking university department, along with IIT Bombay at 38th and IIT Kharagpur at 47th position for mineral and mining engineering each.

Further, subject-wise, mathematics saw 10 Indian universities being ranked with six of them improving their position, while computer science & information systems include 17 Indian universities getting ranked with nine improving their position.

According to QS, the strengths of Indian universities remain in science, technology, engineering, and mathematics (STEM) subjects with India's eight IITs and IISc being ranked 104 times, witnessing 33 improvements in positions.

The rankings are published after an extensive overview of international higher education performance, with over 1200 universities from 78 locations ranked in 48 subject tables and five broad disciplinary tables by QS.

Marksheet

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Telling Numbers: Computer Science, Chemistry power India in QS Ranking

March 1, 2019 <https://indianexpress.com/article/explained/computer-science-chemistry-power-india-in-qs-rankings-iit-delhi-bombay-5605738/>

No university has experienced a drop in rank. India's eight IITs and IISCs are ranked 104 times, with 33 improvements in rank and only 7 drops in rank.

In the latest World QS rankings, Indian universities have excelled in Computer Science, followed by Chemistry and Physics & Astronomy. The Computer Science departments of 17 Indian institutes have been ranked among the world top 200 in 2019, with those of IIT Bombay and IIT Delhi featuring in the top 100.

Chemistry too has 17 Indian entries, with IISc Bangalore and IIT Bombay's departments in the 101-150 rank bracket. Physics & Astronomy departments are ranked 16 times, with IIT Bombay's department once again ranking among 101-150.

INDIA IN QS WORLD RANKINGS 2019, BY SUBJECT

Subject	Ranked universities	Leaders (global rank)
Computer Science	17	IIT Bombay, IIT Delhi (51-100)
Chemistry	17	IISc Bangalore, IIT Bombay (101-150)
Physics & Astronomy	16	IIT Bombay (101-150)
Business & Management Studies	14	IIM Bangalore (51-100)
Engineering (Electrical & Electronic)	14	IIT Bombay, IIT Delhi, IIT Madras (51-100)
Engineering (Mechanical)	13	IIT Bombay, IIT Delhi, IIT Madras (51-100)
Economics & Econometrics	11	University of Delhi (101-150)
Biological Sciences	11	Indian Institute of Science Bangalore (201-250)
Engineering (Chemical)	10	IISc Bangalore & IIT Bombay (51-100)
Mathematics	10	IIT Bombay & IIT Delhi (101-150)

With 89 Indian departments ranking among the global top 200 for their subject, it is 22 more than in 2018. Three Indian universities have at least one department among the top 50 in the world for their subject.

These three are the University of Delhi (37th for Development Studies), IIT Bombay (38th for Mineral and Mining Engineering) and IIT Kharagpur (47th for Mineral and Mining Engineering). Ten Indian universities are ranked for Mathematics. Of the 17 Indian universities ranked for Computer Science & Information Systems, 9 have improved their rank, 3 remain stable, and 5 are new entries.

IIT Delhi launches int'l PhD fellowship

February 28, 2019 <https://thepienews.com/news/iit-delhi-launches-intl-phd-fellowship/>

The Indian Institute of Technology Delhi is looking to enrol 500 international students to its new International PhD Fellowship Programme over the next five years, with enrolled international students paying fees on par with those of their Indian counterparts.



The goal is to admit 200 international PhD students in the upcoming academic year 2019-20

“The cultural diversity that will happen because of this step will go a long way in generating new research ideas”

The institute has already begun promoting the program across a number of countries including the Maldives, Russia, Canada, Taiwan, Italy, France, Sweden, Egypt in a bid to encourage some of the brightest minds from around the world to study there.

According to a Times of India report, in addition to paying similar fees to Indian students, international students on the IPFP will receive a stipend of Rs 31,000 (£334.81) for the initial two years and Rs 36,000 (£388.81) for the remaining period of their research.

“We are now aggressively focussing on internationalisation of education being imparted at the Institute,” said director of IIT Delhi, V Ramgopal Rao.

“Currently, we have as many as 100 foreign PhD students, which is about 1% of total PhD students at the campus, but we want to raise it to 10% in the next three years. IPFP is a way to reach that target.”

Rao explained that there is no yearly quota for admitting students, with a goal of admitting 400 Indian and 200 international PhD students in the upcoming academic year 2019-20.

He said that in the past, international students have tended to opt for private universities for research and PhD programs as there is a notion that IITs are tough to get through.

“For IPFP admissions, we will be adopting the American way of admissions, which is well-accepted and popular,” he said, adding that international students will go through interviews on Skype and will be required to produce reference letters at the time of admission.

“Having meritorious PhD students coming to IIT Delhi from all over the world will not only enhance the quality of research happening at IIT Delhi but will also help India develop its soft power across the world.

“The cultural diversity that will happen because of this step will go a long way in generating new research ideas,” he added.

IIT-D develops India’s first Braille Laptop for visually impaired

February 28, 2019 <https://www.dailypioneer.com/2019/state-editions/iit-d-develops-india---s-first-braille-laptop-for-visually-impaired.html>

For the first time in India, the researchers and scientists of Indian Institute of Technology (IIT-D) Delhi, has developed a ‘DotBook’- the country’s first Braille Laptop for the blind students and the community. This laptop which is exclusively created for the differently abled will be affordable and have refreshable Braille display.

“Presently, 40 cell Refreshable Braille Devices is available of Rs 1 lakh but this laptop built on IIT Delhi’s patented Shape Memory Alloy Technology will bring down the cost down by almost 60%, and thus helping make this solution accessible to the millions who were previously un-catered-to. This

becomes very significant as low income countries contribute to over 90 per cent of the world's visually impaired population," said Professor M Balakrishnan, Head of the project.

The laptop, known as the DotBook which was launched on Wednesday have two types of variants such as DotBook 20P:20-Cell Braille Variant with Perkins Keys and DotBook 40Q:40-Cell Braille Variant with QWERTY Keyboard.

Our vision with the DotBook has been to enable VI persons to compete and succeed independently in an office or educational environment and hence, the DotBook comes packed with all the applications and features that a VI User would need to independently carry out their tasks with ease. These features include Email, Calculator, Web Browser and comes with a QWERTY Keyboard, added the professor.

According to, project-lead, "DotBook represents an excellent example of user oriented applied research. On one hand it is not only inter-disciplinary in nature as it brings together advanced techniques in mechanical, low power electronics, software and UI design together but is also a result of sustained efforts over four years of a multi-organizational team comprising academics, two industry partners and a user organisation."

IIT-D helps create 'equal opportunities' for visually impaired

February 28, 2019 <https://www.thehindu.com/news/cities/Delhi/iit-d-helps-create-equal-opportunities-for-visually-impaired/article26392154.ece>

Researchers launch DotBook allowing visually impaired people independent access to digital content

Researchers at Indian Institute of Technology, Delhi on Wednesday have developed DotBook that has a refreshable Braille display aiming at creating independent access to digital content for the visually impaired.

DotBook, the institute said will enable visually impaired people compete and succeed independently in an office or educational environment and hence, comes packed with all the applications and features that a visually impaired user would need to independently carry out their tasks with ease.

Social inclusion

"The features include email, calculator, web browser and comes with a QWERTY keyboard," the institute said.

The institute said that the device will help address issues such as social inclusion and creating equal opportunities in education and employment.

Positive impact

"DotBook is sure to create a positive impact for the visually impaired community where hassle-free, independent access to the digital world has emerged as a key factor in everyday living, education and work," the institute said.

M. Balakrishnan, Professor at IIT-Delhi who led the project said, “DotBook represents an excellent example of user-oriented applied research. It is not only inter-disciplinary in nature as it brings together advanced techniques in mechanical, low-power electronics, software and UI design together, is also a result of sustained efforts over the four years of a multi-organisational team comprising academics, two industry partners and a user organisation.” The product will be manufactured, maintained and marketed by a Noida-based company while its key component, that is the 10-cell refreshable Braille cell modules, will be manufactured, maintained and marketed by a company based in Chennai.

PANChSHEEEL Study presents integrated package of interventions to address Under-Nutrition in Children

February 26, 2019 <http://indiaeducationdiary.in/panchsheel-study-presents-integrated-package-interventions-address-nutrition-children/>

Funded by the Global Challenges Research Fund (GCRF) and Medical Research Council (MRC), the PANChSHEEEL Study, a collaboration between Indian Institute of Technology Delhi, University College London (UCL), Save the Children, and Jawaharlal Nehru University (JNU) was released in IIT Delhi today.

The study’s findings were released by Prof. Monica Lakhanpaul, Professor of Integrated Community Child Health, UCL Great Ormond Institute of Child Health, and Principal Investigator of the PANChSHEEEL study in the presence of Prof. Vinod K Paul, Member, NITI Aayog.

The PANChSHEEEL study, conducted in two blocks of Banswara district in Rajasthan, uses a community participatory approach to co-develop an interdisciplinary intervention package to improve infant and young child feeding and care practices, using schools as a platform and children as change agents. It utilises a community mobilisation and collective action approach to bring about change at the household, village and policy level and create linkages between Health, Education, Engineering and Environment. The project aligns with POSHAN Abhiyaan, a Government of India mission that takes a multi-sectoral approach towards synergistic solutions, recognising the socio-ecological determinants of under-nutrition.

Sharing landmark achievements of the ‘Poshan Maah’, Prof. Vinod K Paul, Member, NITI Aayog said, “There is a greater political momentum against malnutrition in the country, with PM closely backing up the Poshan Abiyaan. We need to take note of the fact that 90% children are not food hungry but nutrition hungry. In the last Poshan Maah, the Mission reached out to almost 10 crore children, 2/3 participants were women and 30% were converged activities. It triggered a Jan – Andolan and the same message needs to be reinforced to and from all stakeholders – media, community, citizens, we all need to converge to create behavioural change to ensure a better start of life”.

Talking about the key findings of the report, Prof Monica Lakhanpaul added, “Schools are a key part of our intervention as a recognised platform for social change, so we envisage that schools – where communities come together, teachers are respected and children can be change agents even in the homes – can be a forum to enhance existing platforms of community health delivery such as the Anganwadi centres”.

Professor Virendra Kumar Vijay, IIT Delhi, said: “Through this interdisciplinary project we assessed

the environmental and engineering factors affecting nutrition. We found that clean water and safe sanitation systems has a vital role to play”.

Dr. Rajesh Khanna, Senior Technical Advisor – Health & Nutrition, Save the Children added, “Tackling the problem of undernutrition requires cross-sectoral and context-specific interventions. The PANChSHEEL study has been unique as it has not only collected information on both nutrition specific and nutrition sensitive factors, but also utilised the information effectively for developing the intervention package working together with the community. The emerging design is extremely relevant in the context of POSHAN Mission”.

The research study is structured around existing networks of Aanganwadi Centres in India, that are now co-located with schools, creating an opportunity to develop ‘community education and innovation hubs’. Through mixed methods, different perspectives and data were obtained on IYCF and care practices and the intervention has been designed keeping in mind a community approach with focus on schools as a platform for community engagement and mobilization.

IIT-D research partner in £20 mn project to tackle water woes

February 26, 2019 <https://www.dailypioneer.com/2019/state-editions/iit-d-research-partner-in---20-mn-project-to-tackle-water-woes.html>

In order to tackle the challenges and barriers to water security and sustainable development, the Indian Institute of Technology (IIT-D) Delhi is going to partner in a £20-million-pound international collaboration to develop new approaches to provide solutions for the same. Also, a project was launched on Monday under the aegis of Foundation for Innovation and Technology Transfer (FITT), IIT Delhi, to bring together leading global experts from academia, industry and government to discuss upon the true value of water and address the challenge of water security for all.

According to the spokesperson of IIT-D, the project is funded by United Kingdom Research and Innovation (UKRI) through the Global Challenges Research Fund (GCRF) - which is a key component in delivering the UK AID strategy and puts UK-led research at the heart of efforts to tackle the United Nations Sustainable Development Goals.

“The water security of India is at stake because of the ever increasing demands for water, not only for irrigation but also for industrial and domestic sector. Most of the river basins in India are found to be over exploited, which is also corroborated by the alarmingly falling groundwater tables year after year. India accounts for 25% of the total groundwater extracted by the world. The conditions are expected to further acerbate in future due the impacts of climate change on water resources. Water security in India is going to undergo enhanced threat in future. Hence, this is the most opportune time to judiciously look into the reasons why the present water stress has been created so that appropriate and sustainable solutions are obtained for the present, which should also serve as good guide to adaptation options under the future conditions,” said Professor AK Gosain, Department of Civil Engineering, IIT Delhi.

The new UKRI GCRF Water Security and Sustainable Development Hub is one of the 12 hubs being set up to tackle some of the greatest challenges facing today’s society, said the official.

Professor Richard Dawson, from the School of Engineering at Newcastle University and academic lead for the new Water Security and Sustainable Development Hub said, “Access to clean water is essential for life and it is the stepping stone to sustainable development because it improves health, supports jobs, and enables food production.”

The project will start in March and GCRF Water Security Hub will run for five years.

Dr Dhanya CT, Department of Civil Engineering, IIT Delhi and Principal Investigator of the hub in IIT Delhi said, “The hub’s activities are focused to promote integrated and sustainable development and management of India’s water resources by using state-of-the-art technology. Suggested research shall engage in creation of a framework in collaboration with the Hub and the other Collaborators for planning, monitoring and assessment using an integrated approach.”

IIT-D joins hands with UK body to work towards water security

February 26, 2019 <https://www.thehindu.com/news/cities/Delhi/iit-d-joins-hands-with-uk-body-to-work-towards-water-security/article26369271.ece>



It is a £20-million project that will help tackle challenges

IIT-Delhi on Monday said it has entered a £20-million international collaboration with UK Research and Innovation to develop new approaches to tackle challenges and barriers to water security and sustainable development.

“A major project has been launched under the aegis of Foundation for Innovation and Technology Transfer [FITT], IIT-Delhi, to bring together leading global experts from academia, industry and government to understand the true value of water and address the challenge of water security for all,” IIT-Delhi said in a statement. .

The project is funded by UK Research and Innovation (UKRI) through the Global Challenges Research Fund (GCRF). And the new UKRI GCRF Water Security and Sustainable Development Hub is one of the 12 hubs being set up to tackle some of the greatest challenges facing today’s society.

A.K. Gosain, Department of Civil Engineering, IIT-Delhi, and the lead researcher for the hub in IIT Delhi said, “The water security of India is at stake because of the ever-increasing demands for water, not only for irrigation but also for industrial and domestic sector. Water security in India is going to undergo enhanced threat in future. Hence, this is the most opportune time to judiciously look into

the reasons as to why the present water stress has been created, and to work towards appropriate and sustainable solutions. It should also serve as a good guide to adaptation options under the future conditions.”

Starting in March 2019, the Newcastle University-led GCRF Water Security Hub will run for five years and will bring together research partners from Indian Institute of Technology Delhi, School of Planning and Architecture Delhi and institutes from Colombia, Ethiopia, Malaysia, UK, and the International Water Management Institute.

Air quality in Delhi better than 2014, but pollution still above limits, reveal data

February 26, 2019 <https://www.hindustantimes.com/delhi-news/air-quality-in-delhi-better-than-2014-but-pollution-still-above-limits-reveal-data/story-F3gUOtvqsRhb8iy2WF5uSN.html>

Delhi’s pollution levels are at least three to four times above the permissible limits throughout the year despite a 14% drop in pollution since 2014, revealed data presented in the Outcome Budget 2018-19.



Data also stated that while at least 62% of the schemes and programmes undertaken by the environment department are on track, 27% were off-track.

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It also stated that while at least 62% of the schemes and programmes undertaken by the environment department are on track, 27% were off-track.

While the government has already met the targets set to provide subsidy for battery-operated two-wheelers, it is close to meet the targets of providing subsidy to battery-operated four wheelers, deploying adequate number of air marshals, setting up eco-clubs in schools and colleges and

providing financial aid to resident welfare associations (RWAs) for development and maintenance of parks and gardens.

Experts said such prolonged exposure to high levels of pollution could be bad even for a healthy person as it could not just trigger a range of diseases but could also reduce one's life expectancy, recent studies have shown.

“Coordinated efforts have led to a significant drop in pollution levels in the past five years. But the pollution levels are still very high if we take the annual mean concentration,” a senior official of the state environment department said. According to the National Ambient Air Quality Standards, the annual permissible limit for PM10 is 60ug/m³ and the limit for PM2.5 is 40ug/m³. The annual permissible limits prescribed by the World Health Organization are even lower — PM10 is 20ug/m³, for PM2.5 the limit is 10ug/m³.

This means concentration of pollutants in Delhi's air is hovering at least three–four times above the Indian standards throughout the year. If the world standards are considered, then it is at least 12–13 times higher than the permissible limits.

“This is a matter of concern because apart from patients, the elderly and infants who are always at a higher risk, even healthy individuals on being exposed to such high levels of pollution for such prolonged period could develop a range of ailments,” said TK Joshi, environmental health adviser to the Union environment ministry.

Deaths linked to breathing disorders shot up by 40% in 2016 from 2015 — 6,502 to 9,149 — the highest jump from the previous year since 2010. From 2009 to 2010, the number of deaths linked to respiratory problems had gone up from 5,328 to 7,525 — an increase of 41%. Incidentally, both 2016 and 2010 had seen a sharp rise in dust pollution, according to data from the Central Pollution Control Board.

A study by researchers from IIT Delhi and TERI in 2018 showed that the average level of PM2.5 — the pollutants that can penetrate deep inside the lungs — in Delhi remained more than two times above the annual permissible limits.

Experts also pointed out that even though there has been a drop in pollution levels between 2014 and 2016 the levels have almost become stagnated and refused to come down over the past two years, despite the implementation of the Graded Response Action Plan. “The annual mean concentration of PM10 and PM2.5 has revealed that the pollution levels have stabilized. But a lot more would have to be done now to reduce the level. The focus should now be more on implementation of the Comprehensive Action Plan which targets to bring in systemic changes rather than the Graded Response Action Plan,” said Anumita Roy Chowdhury, executive director (Research and Advocacy) at Centre for Science and Environment

Project launched to convert high-ash coal into methanol

February 25, 2019 <https://www.thehindubusinessline.com/news/science/project-launched-to-convert-high-ash-coal-into-methanol/article26365861.ece>

Researchers at Indian Institute of Technology (IIT) - Delhi and engineers from Pune-based Thermax have joined hands to set up a pilot plant for producing methanol from high-ash content Indian coal.

The pilot plant will have capacity of producing one tonne methanol every day. The experience will help in development of larger capacity methanol production plants. The pilot project is expected to be completed in 2021. While IIT team will address challenges in areas like catalysis, hydrodynamics and process technology, Thermax will designing, install and run the facility. Several other institutions like Bhabha Atomic Research Centre will also be involved in various aspects of the project.

“This is a multi-faceted project which demands various R&D inputs, which our diverse team is working on intensively,” said Prof. Shantanu Roy, project lead from IIT Delhi.

Liquid fuels are preferred in the transportation sector over solid and gaseous fuels, mainly due to their low ash content and high energy density which allow them to be stored in vehicles for extended periods. Methanol as a liquid fuel for transport and cooking applications is considered as credible option for India. Methanol is known to exhibit excellent properties as a blending agent in internal combustion engines. Its derivative, dimethyl ether (DME), can potentially address a variety of energy demands, including as domestic fuel.

While the focus of the current project is to achieve technology demonstration on converting the high-ash Indian coal to methanol, there is also a plan underway to add a renewable energy component in future to capture and utilize the balance carbon dioxide and make project a platform for developing more technologies.

Member of NITI Aayog V. K. Saraswat, launched the facility during the Second International Meeting on Clean Energy Materials Innovation Challenge organized by the Department of Science and Technology. DST Secretary Ashutosh Sharma and IIT Delhi Director V. Ramgopal Rao were present at the launch.

IIT Delhi launches International Ph.D. Fellowship Programme

February 25, 2019 <https://www.theindianwire.com/education/iit-delhi-launches-international-ph-d-fellowship-programme-104911>

Indian Institute of Technology, Delhi has launched International Ph.D. Fellowship Programme for foreign students aspiring to pursue research at the Institute. The Programme offers a lesser fee to pay for foreign students.

According to the JRF, SRF provisions, the Fellowship will offer a stipend of ₹31000 for two years and ₹36000 for the rest of the years until they finish their doctoral degree.

“We are now aggressively focussing on internationalization of education being imparted at the Institute. Currently, we have as many as 100 foreign Ph.D. students, which is about 1% of total Ph.D. students at the campus. But, we want to raise it to 10% in the next three years IPFP is a way to reach that target,” says V Ramgopal Rao, director, IIT Delhi.

“Most often, foreign nationals opt for private universities for research and Ph.D. programmes as there is a notion that IITs are tough to get through. For IPFP admissions, we will be adopting the American way of admissions, which is well-accepted and popular. Foreign students will go through

personal interviews on Skype and will be required to produce reference letters at the time of admission. We will also look into considering GRE scores,” he adds.

According to the QS World University Ranking 2018, IIT Delhi lacks the number of foreign students getting enrolled and foreign teachers practicing in India.

“Encouraging international students will bring international recognition, cultural diversity and improve the institute’s global ranking. The envisioned long-term impact of the newly launched Ph.D. programme is to create a global brand for India and attract foreign students to all the programmes, including bachelor’s, master’s and MPhil degrees, where the students admitted to courses other than Ph.D. will not receive financial assistance,” says Rao.

It has been reported that around 500 fellowships will be provided to foreign students for five years. Rao adds that the number doesn’t indicate any quota for international students, the fellowship aims at admitting over 200 foreign Ph.D. students along with 400 Indian students for the next academic session of 2019-20. The 28 departments where the students can apply to involve Applied Mechanics, Atmospheric Sciences, Biomechanical Engineering, Biotechnology, Biological Science, and Biomechanical Engineering.

March 1

Shanti Swarup Bhatnagar Prize ceremony: India’s top, young scientists felicitated

<https://indianexpress.com/article/india/shanti-swarup-bhatnagar-prize-ceremony-indias-top-young-scientists-felicitated-5605874/>

Given out in seven disciplines - Biological, Engineering, Medical, Chemical, Physical, Mathematical, as well as Earth, Atmosphere, Ocean and Planetary Sciences - the awards were given out on February 28, the National Science Day.



PM Narendra Modi with the winners at the ceremony.

Several Indian Institutes of Technology (IITs) combined won eight awards at the ceremony for the coveted Shanti Swarup Bhatnagar Prize for Science and Technology, in New Delhi. Close behind the IITs was the Indian Institute of Science, Bengaluru (IISc), which won seven prizes at the ceremony.

Given out in seven disciplines – Biological, Engineering, Medical, Chemical, Physical, Mathematical, as well as Earth, Atmosphere, Ocean and Planetary Sciences – the awards were given out on February 28, the National Science Day, which marks the 1928 discovery of the Raman Effect by India's first Nobel Laureate in science, CV Raman.

In four of the seven categories, the winners were awarded a cash prize and a plaque by Prime Minister Narendra Modi. The awards were presented for the years 2016, 2017, and 2018, with a total of 34 winners. A skewed gender-ratio was clearly visible – there was only one woman among the awardees.

Aditi Sen, who works with the Harish Chandra Research Institute in Allahabad, was awarded in the physics category for her work in “quantum information and communication, including the formulation of a computable entanglement measure and a novel density-matrix recursion method”.

Most of the awards for scientists working with the IITs came in the fields of Engineering and Mathematics-three in each category. The awards won by IISc were more evenly spread, with the institute's scientists winning the prize in the fields of Engineering, Physical Sciences, Biological Sciences, and Chemical Sciences, among others.

Others won it for pioneering works that included designing models and algorithms to solve online problems and problems of clustering, scheduling and network design (Amit Kumar of IIT-Delhi), and the development of end-to-end carrier-class networking solutions and carrier Ethernet switch routers used in the national infrastructure (Ashwin Anil Gumatse of IIT-Bombay), and molecular mechanisms for red cell invasion as highly potent targets for malaria vaccine targets (Deepak Gaur of JNU, New Delhi).

Some of the other work that was felicitated included research on cancer cells, neuronal physiology, dynamic geological processes, alternate fuels, metamaterials and genome replication.

At the awards ceremony, the loudest applause came for the last winner of the ceremony. Ganesan Venkatasubramanian, who works with the National Institute of Mental Health and Neurosciences in Bengaluru, received his award on crutches due to a disability in his legs. His work towards the psychiatric disorder schizophrenia that won Venkatasubramanian his award, for his “outstanding body of clinical research in schizophrenia spanning from pathogenesis to treatment and indigenous device development”.

Science communicators get awards for popularising subject

<https://www.downtoearth.org.in/news/science-technology/science-communicators-get-awards-for-popularising-subject-63411>

The award is to promote bridging gaps between scientists and lay man for better scientific communication



Marking the National Science Day, the Ministry of Science and Technology on February 28, 2019 presented awards to 10 science communicators from different parts of the country with the National Science and Technology communication awards for 2018.

Speaking on the occasion, Principal Scientific Advisor to the Government Vijayaraghavan, emphasised the need to bridge the gap between scientists and the common man to promote scientific temperament. "The gap between the scientists and the common man can't be bridged if scientists are bothered only about their work and not connecting with the lay public. It is essential that scientists go closer to the people and communicate with them," he said.

Presenting the awards, Ashutosh Sharma, secretary, Department of Science and Technology, urged scientists to get associated with the recently launched DD Science television programme and the web portal India Science so that science communication could be promoted in the country.

While DD Science is an one-hour slot on Doordarshan National channel, which will be telecast from Monday to Saturday from 5pm to 6pm, India Science is an online channel, which will be available on all internet-enabled devices and offer live, scheduled play and video-on-demand services round the clock.

Head of National Council for Science and Technology Communication Nisha Mendiratta noted that the national science communication awards are being given since 1987. The awards are presented in six categories every year on National Science Day. The awards carry a prize amount of Rs 2 lakh each. The aim is to popularise science, promote scientific temper in the country and encourage those engaged individuals and institutions involved in science communication.

National Science Day is celebrated on February 28 every year to mark the discovery of Raman effect by Sir CV Raman. The discovery fetched him the Nobel Prize.

Science communicators who received the awards today include Huidrom Birkumar Singh of Imphal, Munindra Kumar Mazumdar of Guwahati, and Manasi Goswami of Bhubaneswar (national award in print media category).

Biologist Huidrom has written articles for various newspapers and magazines. He has also written books on water, biodiversity, and biological resources in English and Manipuri language. Munindra Kumar is engaged in popularising mathematics among students and their parents living in remote areas of Assam. Mansi Goswami has won the award for translating scientific literature and popularizing science through cartoons, poems, drama scripts and Wall Magazines.

In the second category of outstanding efforts in popularizing science among children` Rural Agricultural Development Society, an organization working in Anantpur district of Andhra Pradesh,

has won the first prize, Rajkumar, Vice Chancellor, Uttar Pradesh University of Medical Sciences, Etawah the second prize and Zakir Ali 'Rajneesh' of Lucknow the third prize. Rajkumar has been involved in inculcating scientific temper amongst children, and Rajneesh is devoted to writing science stories and informative articles.

In the third category of awards for popularising science with innovative and traditional methods, Brijmohan Sharma of Nainital has won the first prize and Sunitajhala of Jaipur the second prize. Manish Ratnakar Joshi of Jalgaon got the national award for translating popular science and technology literature in the eighth Schedule languages and English and Ankuran Dutta of Guwahati has been awarded for generating scientific interest in the marginalized communities through electronic medium.

Nobody found suitable for award under the category of outstanding efforts in science and technology communication. The award consists of Rs 5 lakh, a memento and citation. (Indian Science Wire)

February 28

QS rankings by subject: 22 new entries from India in global top-200 list

<https://indianexpress.com/article/education/qs-rankings-by-subject-22-new-entries-from-india-in-global-top-200-list-5604028/>

Three universities have at least one department in the top 50 globally. Delhi University's department of development studies is ranked highest at the 37th position.

INDIA IMPROVED its performance in the latest edition of the 'QS World University Rankings by Subject' released on Wednesday, as 22 new Indian departments breached the top-200 club, taking the total to 89 this year.

Three universities have at least one department in the top 50 globally. Delhi University's department of development studies is ranked highest at the 37th position. This is followed by Mineral and Mining Engineering at IIT-Bombay (at rank 38) and then IIT Kharagpur (at 47).

It has the largest representation in Computer Science and Information System with 17 universities finding a rank in this category. IIT-Bombay and IIT-Delhi are the leaders under this category among all Indian institutions.

"India's eight IITs and IISc are ranked 104 times, with 33 improvements in rank and only 7 drops in rank," the press statement released Wednesday said.

The US (1,884), UK (958) and Australia (508) have the largest number of departments ranked worldwide.

Four young scientists win DST science writing award

<https://www.thehindu.com/sci-tech/science/four-young-scientists-win-dst-science-writing-award/article26399048.ece>



On the eve of National Science Day, a certificate of appreciation and cash prize were given to three PhD students and one Post-doc fellow who won the Department of Science and Technology's (DST) science writing competition — Augmenting Writing Skills for Articulating Research (AWSAR).

The AWSAR initiative is to encourage and equip PhD scholars and post-doctoral fellows with writing skills to communicate science with lay people. Students are required to submit a popular science article about their research.

Cash prizes of ₹1,00,000, ₹50,000 and ₹25,000 were given to the first three winners among PhD students and ₹1,00,000 to one Post-doc fellow. Also, 100 best stories by PhD students and top 20 stories by Post-doc fellows will get a cash prize of ₹10,000 each.

Ashish Srivastava from the School of Engineering and Technology, University of Mumbai won the first prize in the PhD category, while Ajay Kumar and Nabanita Chakraborty from Indian Institute of Technology (IIT) Madras and Vidyasagar University, Medinipur, West Bengal won the second and third prizes, respectively. Dr. Paulomi Sanghavi from Tata Institute of Fundamental Research (TIFR), Mumbai won the ₹1,00,000 prize in the Post-doc category.

“We received 2,600 stories from PhD students and 500 from Post-doc fellows,” said Dr. Rashmi Sharma, scientist at DST and in-charge of the AWSAR programme. Apparently, there were over 4,000 registrations but not every one who registered was able to submit stories on time. DST was expecting at least 5,000 articles from PhD students and about 1,000 articles from post-doctoral fellows.

“The stories by the top three PhD students are very good. Over all, there is scope for improvement among PhD students,” Dr. Sharma said. “The stories by Post-doc fellows are definitely better than PhD students. The experience of writing PhD thesis seems to have helped them.”

DST had conducted four workshops to teach students how to write popular science articles. The agency intends to conduct 8-10 such workshops this year. “The workshops will help in capacity building and further help in improving the writing skills of students,” she said

On why fewer than expected entries were received from PhD students, DST Secretary Prof. Ashutosh Sharma said: “Students have submitted their stories based on our advertisement. We have so far not made it mandatory for all PhD students to write a popular science article [based on their research]. We will take a final decision after consulting with other stakeholders. I feel it is desirable that PhD students write a popular science article during their PhD programme. It would improve their writing skills...they would gain a lot from it.”

Among the three winners and top 10 best stories in the PhD category, four are from Mumbai. Besides Ajay Kumar (who won the second prize), there are five more students from IIT Madras alone in the PhD category but none in the Post-doc category. While there are only four PhD students from Indian Institute of Science (IISc), Bengaluru, there are three students in the Post-doc category. Altogether, there are 26 PhD students from IITs in the PhD category and two in the Post-doc category. Eight PhD students from CSIR labs are in the top 100 list.

“Science communication is an important activity for scientists and is a part of doing science. Yet, the importance of communicating with lay audience is not emphasised early on and those who do it are not rewarded,” DST Secretary Prof. Sharma told The Hindu last year. “We want to change this by producing a group of people who can translate their research work into popular science articles. The intent of the programme is to inculcate popular science writing skills and bring science closer to the society.”

New CUBE building opened at IIT-M Park

<http://www.newindianexpress.com/states/tamil-nadu/2019/feb/28/new-cube-building-opened-at-iit-m-park-1944637.html>

The six-storey building is a green structure constructed to meet the needs of the centre.

The new office building of the Centre for Urbanisation, Buildings and Environment (CUBE), a centre of excellence set in collaboration with the Tamil Nadu government and IIT-Madras, was inaugurated on Wednesday.

The principal secretary to the Housing and Urban Development department, S Krishnan, inaugurated the new facility at IIT-M Research Park in the presence of Bhaskar Ramamurthi, Director, IIT-M, several dignitaries from the government and prominent faculty members of IIT-M.

The six-storey building is a green structure constructed to meet the needs of the centre.

With a seeding fund of `10 crore with contributions from the CMDA, TNHB, TNPCB and MAWS, CUBE was established in 2017.

Within a short span of 20 months, the centre has blossomed into a reputed ‘Applied Engineering, Technology and Consultancy Centre’, taking on challenging assignments and stamping its presence effectively in the ecosystem as an enabler in its domains.

CUBE is a unique organisation which brings together research and technological strengths of IIT-Madras, facilitation and support from the government, and practical experience and innovations of a dedicated set of experts in various domains.

February 27

Dr. MK Sridhar, MHRD: Entire Education system is compartmentalised, leading to children confined with choices

<https://www.theindianwire.com/education/dr-mk-sridhar-mhrd-entire-education-system-compartmentalised-leading-children-confined-choices-105792/>



Addressing the two-day seminar on 'Rejuvenation of Undergraduate Education' which was organized by Karnataka Rajya Mahavidyalaya Shikshak Sangha (KRMSS) in collaboration with UGC-HRD Centre, Karnataka University Dharwad, NAAC Bengaluru and Center for Educational and Social Studies, Bengaluru on Tuesday, Dr. M. K Sridhar, member of Centre for Advisory Board on Education, MHRD (Ministry of Human Resource Development), shares his views on the present education system, "The entire structure is divided into just three streams arts, commerce, and science and they are strictly compartmentalized. This resulted in students being confined to their respective streams and not look beyond that," he said.

He also mentioned the issue of teachers having the authority to evaluate their own child to whom they teach, "Unfortunately there is no single body in the higher education sector to take complete responsibility of the entire process of framing the syllabus, teaching it, setting the question papers, evaluating answer scripts and giving the degree," he said.

Renowned educationist from NEUPA, New Delhi Dr. K Ramachandran said that in order to make the university reach a global level, a lot of efforts by teachers and students is required. He expressed that universities are in desperate need of achieving faculty excellence, international exposure to students and teachers, excellence in research and scholarship and excellence in governance, leadership, and development of management skills to rejuvenate undergraduate education.

The event also witnessed the presence of KU Vice-Chancellor Pramod Gai where he said, that there is a need to bring a change in the higher education system.

The event also witnessed the presence of Rani Channamma University vice-chancellor Shivanand Hosamani, Pro-vice chancellor of Jain University Sandeep Shastri, ABRSM secretary Mahendra Kumar, and others.

Sandeep Shastri at the event spoke that the curriculum at the undergraduate level should make children industry-ready or should provide the experiential learning, “With changing technology, teachers should tap into students’ digital experience and learn from them,” he added.

He also said that power-point presentations cannot be confused with the chalk and talk that should not be considered as experiential learning, students should speak on a 50-50 basis.

IIT Kharagpur to host grand finale of Smart India Hackathon 2019 on March 2-3

<https://www.zeebiz.com/india/news-iit-kharagpur-to-host-grand-finale-of-smart-india-hackathon-2019-on-march-2-3-87944>

The event is an initiative of the Ministry of Human Resources Development. Over 1,300 teams, each having eight participants, will be competing non-stop for 36 hours across 48 different nodal centres of the country, in the grand finale on March 2-3.



A live interaction session with Prime Minister Narendra Modi has been scheduled later on that date. SmartIndiaHackathon Twitter Handle

IIT Kharagpur will be hosting the grand finale of the 'Smart India Hackathon (SIH) 2019', on March 2-3 that would test the students' abilities to solve daily life problems. This year, 186 students from various colleges including six from IIT Kharagpur, will be participating in the event, an IIT KGP statement said Wednesday.

The event is an initiative of the Ministry of Human Resources Development. Over 1,300 teams, each having eight participants, will be competing non-stop for 36 hours across 48 different nodal centres of the country, in the grand finale on March 2-3.

IIT KGP is one of these 48 centres. Union HRD minister Prakash Javadekar will announce the start of the Smart India Hackathon 2019 on March 2. A live interaction session with Prime Minister Narendra Modi has been scheduled later on that date.

The event aims to provide students with a platform to solve some of pressing problems we face in our daily lives, and inculcate a culture of product innovation and a mindset of thinking outside the box and problem-solving.

The last edition of the hackathon saw over 5 million students from various engineering colleges compete for the top prize across 35 locations. "Smart India Hackathon with its massive scale, reach, mentorship and follow up is aimed at building a new culture of innovation in our higher education system which will have far-reaching effects on the future generations," Director IIT KGP and Chairman of the event Prof P P Chakrabarti said.

City's first-ever drone fest sees jaw-dropping action

<https://timesofindia.indiatimes.com/city/dehradun/citys-first-ever-drone-fest-sees-jaw-dropping-action/articleshow/68174895.cms>

The whirr of the drones did little to drown out the enthusiastic cheers from over a 100 people who had assembled at the Information Technology Development Agency (ITDA) campus in IT Park on Tuesday. The combined strength of man and machine was on display as participants tried to outdo each other using manoeuvres in the sky that left the audience shaking their heads from side to side, trying to catch all of the action.

The first-of-its-kind festival to showcase the latest in drone technology in Dehradun saw participation from 21 states on Tuesday.

The two-day festival 'Dronathon-Dronagiri India Drone festival-2019' is being organised jointly by the Drone Application and Research Centre (DARC) and the Information Technology Development Agency (ITDA). The event was inaugurated by chief minister Trivendra Singh Rawat.

Over a 100 people from 21 states, including researchers from IIT Bombay, IIT Roorkee, IIT Kanpur, students and enthusiasts, showcased the flying machines they had made. The drones included those used for crowd monitoring, delivery, surveillance etc.

The unmanned aerial vehicles were pitted against one another for various types of competitions such as hurdle racing in which a drone had to go around in circles without knocking down anything. Another competition was 'max weight challenge' which judged the machine on its capacity to carry weight over a certain distance. The results of both competitions would be declared on the last day of the event.

TOI caught up with some of the participants who shared the unique features of the power-packed drones perched on their stalls.

Ashutosh (who uses his first name), an employee of the District Disaster Management Authority (DDMA), Chamoli, mentioned with a hint of pride that his Phantom-4 flying camera drone could travel up to 5km. "It can be used for assessment during disasters which is important in a state like Uttarakhand which has often borne the brunt of natural disasters," he said.

Mumbai-based aviation expert Omkar Pandey featured the SAHAS drone, a rather apt name for a machine with a foldable body made up of carbon fibre. The drone can lift weights up to 2 kg.

IIT to extend helping hand to women professionals

<https://timesofindia.indiatimes.com/city/chandigarh/iit-to-extend-helping-hand-to-women-professionals/articleshow/68182211.cms>

Chandigarh: In an effort to help women engineers and scientists in the region to achieve their full potential, IIT Ropar has joined hands with Society of Women Engineers (SWE).

Prof S K Das, director, IIT Ropar, said the institute has joined hands with SWE to inspire and encourage future female engineers. IIT Ropar will annually host women in engineering (WIE) open house to meet female engineers who are at the helm.

Paul Robichaud, managing director, SWE India, lauded IIT Ropar and career development and corporate relations centre's effort in encouraging women towards professional development opportunities and its commitment to have the first centre at an IIT.

As a part of the SWE centre inauguration, Dr Seema Chopra, global technical leader-data analytics at Boeing Research and Technology, India, presented a session on analytics in aerospace.

February 26

IIT Delhi alumni launches AI enabled resume builder

<https://www.newsbarons.com/human-resources/iit-delhi-alumni-launches-ai-enabled-resume-builder/>



MyResumeFormat is the brainchild of IIT Delhi and Amity alumni. The founders of the company, having worked as developers and designers with HR collaborations, devised a simple but effective resume builder that is easy to use and equipped with AI assistance.

MyResumeFormat is a freemium resume builder with various contemporary resume templates that allows one to design his/her own CV in the displayed style. The Artificial Intelligence assists in suggesting responsibilities and duties, inspired by the said professional role. One is required to simply choose the template and add his/her personal information and effortlessly a beautiful resume is ready in minutes.

The idea behind the MyResumeFormat is to build a simple but effective and better resume than what's in the market. The core vision is to enable job seekers generate not just beautiful looking resume but also suggest job responsibilities to ease up the resume making process.

On the occasion, the co-founder Tarun Kumar said "Having worked in recruitment industry, we know that recruiters often receive a stack of applications and give it a mere glance. A resume barely gets a few seconds to impress and get the attention of the HR. To achieve this, a professional design with highlighted job responsibilities is the key. Our resume designs reflect the same."

Our competitive advantage is that MyResumeFormat is free, unlike other resume building websites that lead the user to eventually pay in order to download the final version of the resume. MyResumeFormat allows job-seekers to actually download the design as shown in the preview in PDF format for free. Pro features that enhance the Resume design are available only to the paid users. The generated resume is also readable by Applicant Tracking System (ATS) used by most HRs and employers.

Currently, over a few thousand resumes are generated and downloaded on a monthly basis. Given the ease and convenience that MyResumeFormat offers, the company aims to become the household name when it comes to resume building.

IIT Hyderabad Introduces India's First B.Tech. in Artificial Intelligence Programme

<https://timesofindia.indiatimes.com/city/dehradun/citys-first-ever-drone-fest-sees-jaw-dropping-action/articleshow/68174895.cms>

Indian Institute of Technology (IIT) Hyderabad is introducing a new B. Tech. course in Artificial Intelligence that will be available to the students beginning the coming academic year (2019-2020). It is the first such full-fledged B. Tech. programme to be offered by an Indian university. Even internationally, only select institutions like Carnegie Mellon University and Massachusetts Institute of Technology (MIT) are currently offering similar courses, claimed IIT Hyderabad in a press release.

According to an in NDTV, the B.Tech. in Artificial Intelligence course will intake 20 students each year, who will be selected through the JEE Advanced entrance examination that the students across the country take every year to get admission in the graduate courses at the IITs.

Commenting on the new course, Prof U.B. Desai, Director, IIT Hyderabad, said, "The basic aim is to create a complete ecosystem for Artificial Intelligence Academics and Research at IIT Hyderabad. This involves B.Tech., M.Tech. and different Minor Programs in AI. Moreover, the R&D will be strongly entwined with academics."

February 25

IIT-JAM 2019 provisional answer key released, how to raise objections

<https://indianexpress.com/article/education/iit-jam-2019-provisional-answer-key-released-how-to-raise-objections-5600490/>

IIT-JAM 2019 answer key: As the provisional answer key has been released, the candidates can now raise objections through the official website, jam.iitkgp.ac.in by paying a fee of Rs 500. The final answer key will be available on the official website soon.

IIT-JAM 2019 answer key: The Indian Institute of Technology (IIT), Kharagpur has released the answer key for the Joint Admission Test (JAM) 2019. The candidates who had appeared in the examination can download the answer key through the official website jam.iitkgp.ac.in.

The entrance examination was conducted on February 10, 2019. As the provisional answer key has been released, the candidates can now raise objections through the official website, jam.iitkgp.ac.in by paying a fee of Rs 500. The final answer key will be available on the official website soon.

IIT-JAM 2019 answer key released: How to raise objections

Step 1: Visit the official website- jam.iitkgp.ac.in

Step 2: Enter user id and password

Step 3: Raise objections on answer key by justifying your answer

Step 4: Pay a fee of Rs 500

Step 5: Once done, download and take a print out of it.

The results of IIT-JAM examinations will be declared on March 20, 2019.

The JAM paper is divided into three sections — Section A, B and C. The syllabus comprises of various topics such as BL (Biological Sciences), BT (Biotechnology), GC (Geology), MS (Mathematical Statistics), CY (Chemistry), PH (Physics) and MA (Mathematics).

Low-cost lenses to turn smartphones into microscopes

<https://researchmatters.in/news/low-cost-lenses-turn-smartphones-microscopes>



Low-cost lenses to turn smartphones into microscopes

IIT Bombay researchers develop techniques to make tiny, inexpensive lenses that can be used on smartphones.

Would it not be nice if we could attach a tiny, low-cost lens to our smartphones to have an in-depth look into our blood cells, or identify fake currency notes? Now Prof. Soumyo Mukherji and his group of researchers from the Indian Institute of Technology Bombay (IIT Bombay) have developed a robust and inexpensive technique to make small lenses that can do just that. In the annual science

and technology festival of IIT Bombay, TechFest 2018, the exhibit of these lenses among other displays of his lab attracted big crowds.

Traditionally, lenses have been fabricated by polishing and grinding glass or moulding plastic against a template. These methods are expensive as they require skilled workmanship and costly equipment. A newly developed alternative is to make them using fluids. However, this too presents challenges as one needs a mechanism to manipulate the liquid to make the lens and then stabilise it to ensure that there are no further flows in the fluid.

If you partially fill a glass test tube with water, you will notice that the water surface is not flat, but instead crescent shaped. Similar crescents, called menisci, of differing curvatures, form at the interface between any two fluids. The researchers make use of this property to make their lenses using Polydimethylsiloxane (PDMS), a silicone elastomer.

The researchers poured PDMS on a fluid with which it does not mix, like glycerol or water. It forms a crescent shape at the interface between the fluids. A hot air gun is then used to “cure” the PDMS which essentially allows it to be peeled off, thereby giving it the crescent shape of the interface. Furthermore, by applying an additional pressure at one end of the fluid interface, the researchers could change the shape of the crescent, and thereby alter the curvature of the lens to change the magnification. The technique has been detailed in a study published in the Journal of Biomedical Optics.

“This is a simple, inexpensive and off-the-shelf approach to fabricate miniature lenses reproducibly. We can tune the curvature using a simple pressure control mechanism to generate a programmable mould for lens fabrication. Hitherto, reproducible fabrication of such lenses was a challenge as they required controlled dispensing of viscous liquid. In our research, we show that this approach can produce lenses with highly reproducible curvatures,” says Prof Mukherji.

“The lenses fabricated using this technique have a spherical profile, which inherently suffers from spherical aberration,” explains Dr Bhuvaneshwari Karunakaran, who developed this technique as part of her PhD work at IIT Bombay, highlighting the drawback of spherical lenses. Spherical aberration is a phenomenon where light rays that strike the edges of the lens do not focus at the same location as the light that comes through the centre of the lens, giving rise to blurred images. To solve this problem, the team of researchers have developed an alternative technique, based on the same principles, to make aspherical lenses. “Such lenses have better performance compared to spherical lenses,” says Dr Karunakaran. This approach is detailed in another study published in the Proceedings of SPIE Optical Engineering and Applications.

The researchers have used these lenses to develop a ‘smartphone microscope’ where a fabricated lens is simply placed on a smartphone camera. The microscope has a resolution of 1.4 micrometer, comparable to an optical microscope, and was used to detect pollen grains on a slide and micro-patterns on banknotes. The researchers say that by using their lenses, smartphones could potentially be used to verify the authenticity of currency notes.

Besides, these lenses can be used for a wide range of biomedical applications. “It can be used to identify infected cells in a stained malaria-infected human blood smear and in other biomedical applications such as endoscopes (devices for examining interiors of hollow organs or cavities),

otoscopes (devices for examining ears), sperm counting, dental examination and minimally invasive surgical procedures. It can also be used in designing optical systems for identifying contaminants in water such as microalgae and for other forensic applications,” explains Dr Karunakaran.

Converting innovative technological research into usable products can often be a challenge. But the researchers behind this work are looking forward to commercialising them. “We are in talks for further collaboration to integrate these fabricated lenses with miniature devices in which fluids can be collected and manipulated for applications such as malaria detection,” signs off Prof Mukherji, detailing the plans for the future.

Indore: IIT's income from researches doubles in two years

<https://www.freepressjournal.in/indore/indore-iits-income-from-researches-doubles-in-two-years/1468192>

Indian Institute of Technology Indore, which has been maintaining lead among the eight new IITs in quality of research, is now getting dividends. This elite institute's income from research projects has doubled in last two fiscals. While IIT Indore had sponsored research projects worth Rs 6.03 crore in 2015-16, the institute saw funding agencies standing at its door steps with projects worth Rs 13.21 crore. These details came to fore on going through a report submitted by Institute for National Institute Ranking Framework 2019.

The report revealed that the institute had total 94 sponsored projects from 12 funding agencies in 2015-16. In 2017-18, the number of sponsored projects was 122 from 18 funding agencies. This significant increase in the projects, funding agencies and amount are due to quality of research carried out at the institute.

Abstracting and indexing database Scopus has rated IIT Indore among top new IITs including the ones located in Ropar, Patna, Bhubaneswar, Hyderabad, Gandhinagar and Jodhpur. In 2013, IIT Indore was on third among new IITs but it climbed two positions up and bagged top slot. Since then, it has been maintaining top position for last five years.

According to information, Scopus h-index not only rated IIT Indore as the top institute among new IITs in terms of maximum number research publications but also for quality of research. As of the latest data, the total number of citation by IIT Indore is over 25,000 whereas its high index is 63.

IIT Indore promotes young teachers and PhD scholars to publish research papers in reputed journals and pushes for inter-disciplinary research. It is also increasing number of PhD students every year. To promote students in research and to encourage them for innovation, IIT Indore offers a scheme, 'Promotion of Research and Innovation for Undergraduate Students'.

Spending on salaries increase by 15 crore

The institute spent Rs 40 crore on giving away salaries to its employees in 2017-18, nearly Rs 15 crore to what it had paid in 2016-17. The spending on salaries was Rs 23.29 crore in 2015-16, Rs 25.67 crore in 2016-17 and Rs 40.23 crore in 2017-18. The steep rise in spending on salary was due to implementation of seventh pay commission recommendation and hiring of new teaching and non-teaching staff. Spending on seminars/conferences also increased from nearly Rs 15 lakh in 2015-16 to Rs 2 crore in 2017-18.

Income through consultancy also increases

Income of IIT Indore through consultancy projects also increased by five times in last two fiscal years. In 2015-16, its total income from consultancy projects was over Rs 6.5 lakh whereas in 2017-18 it was Rs 31 lakh. In 2016-17, the income from consultancy was merely Rs 1.6 lakh. The institutes had three consultancy projects each in 2015-16 and 2016-17 whereas 15 firms with 18 consultancy projects approached institute in 2017-18.

February 24

Cracking JEE a big deal in Korea too, says IIT Delhi student from Seoul

<https://claytoncaller.com/cracking-jee-a-big-deal-in-korea-too-says-iit-delhi-student-from-seoul/17391/>

Jaen Hyun Kim from Seoul, is the first foreign student pursuing BTech, Biotechnology, from IIT-Delhi and the 20-year-old refers India as his second home. He decided to do his schooling from India post class VI as he wanted to seek admission in the IIT, which only accepts students through JEE Advanced at the undergraduate level.

Kim says that for many foreign students who want admission in the IITs, there is a lack of guidance. So often, the only way for them is to shift to India and join a coaching center here to prepare for the JEE (Joint Entrance Exam).

Also, in Korea cracking JEE Advanced is considered a tough task and the general perception is that if one can make to the IITs, s/he can crack any other exam, says Kim. The system of negative marking makes the exam hard to crack. Such a system is not followed in Korea.

“Back home we have an option to go abroad after elementary school and study in a different culture. The general trend among those who want to study in a foreign land is to choose the US or the UK. However, I wanted to get an admitted to the IIT and one of my father’s friend’s son was already studying in India and gave me a positive feedback. So, I decided to come here,” says Kim.

He did his high school from an in Hyderabad, where he studied Hindi as part of his core subjects, and later joined a coaching centre to prepare for the IIT entrance exam.

“I prefer talking in English as Hindi was one of my subjects till high school, I haven’t used it much. I speak Hindi when bargaining with the autorickshaw drivers,” he jests.

Talking about the differences in the education system in India and South Korea he says, “Initially I found it difficult to solve subjective question papers in schools here as back in Korea there are only objective question papers.”

At colleges in Korea, equal weightage is given to the extra-curricular activities while herein India there is more stress on the grades, he says adding that however, in India there is more stress on the language skills so his English developed a lot here.

As far as studying in IIT is concerned, he says, the faculty is highly-qualified, the labs are well-equipped and the overall environment is very supportive. Fellow students have helped me adjust to the hostel and

college life, mostly out of intrigue but, he shares a good bond with the friends I have made. He has observed that Indians are very shy towards foreigners.

He is a travel enthusiast and has already travelled across southern and northern India.

“I have already visited five times and in Delhi, I like to visit the Red Fort, which I have already seen thrice. Next year I want to visit Red Fort on Independence Day to hear the Prime Minister speak,” he says adding that not many people know the fact that both India and Korea celebrate their independence on the same day i.e. August 15.

He likes the spicy food in India and would choose dosa and vada for breakfast and aaloo poori for lunch. Though in love with all the festivals held in the country, he especially likes celebrating Dussehra and Diwali, during which he treats himself with rasgullas and faluda. Download The Times of India for Latest.

PhDs on IIT-Bombay campus increase by 311% over 18 years

<https://timesofindia.indiatimes.com/home/education/news/phds-on-iit-bombay-campus-increase-by-311-over-18-years/articleshow/68136159.cms>

The total numbers of PhD students enrolled in the premier IIT-Bombay touched its peak last academic session. While the numbers of researchers have gradually grown, the jump witnessed over the last 18 years has been a staggering 311%. In 2001-02, PhD students on roll, in all the departments included, were only 771. The numbers rose to 3,171 in 2018-19 - the last academic session.

The institute has also seen a marked increase in the numbers of PhDs produced every year. From only about 173 at the beginning of this decade, the numbers of PhDs passing out from the instituted have also touched a good 380.

India's first biodegradable plastic developed by IIT-Guwahati

<https://timesofindia.indiatimes.com/city/guwahati/indias-first-biodegradable-plastic-developed-by-iit-guwahati/articleshow/68133589.cms>



For the first time in India, scientists from IIT-Guwahati have developed biodegradable plastic with the help of homegrown technology. In a country where rising pollution levels remain a serious areas

of concern, the innovation comes as a major shot in the arm for solid waste management. The biodegradable plastic has been developed by IIT-G's Centre of Excellence-Sustainable Polymers (CoE-SusPol), which is funded by the department of chemicals and petrochemicals under Union ministry of chemicals and fertilizers. The centre has already developed kitchen cutlery, household furniture and decorative items including flower pots and toys using this non-biodegradable plastic variant.

"Ours is the only centre in India which is carrying out research on biodegradable plastic. Though the US has been a major producer of biodegradable plastic, the production costs there are very high. But our team has managed to achieve this with lower costs by using homegrown technology. This is cutting-edge innovation and a remarkable achievement," CoE-SusPol coordinator and principal investigator of the project, Vimal Katiyar, told TOI on Saturday. He added that the biodegradable plastic, which has passed the hot-beverage test, is unique because it has no hazardous chemicals.

"The non-biodegradable plastic products, which are commonly used in households, cannot be recycled for 400 years. Products like plastic carry bags, if disposed unscientifically, are hard to decompose and are a massive threat to soil cultivation," Katiyar said.

As environmentalists battle to solve the problem of plastic pollution, the biggest challenge before scientists today is to come up with biodegradable plastic products. Katiyar pointed out that the IIT-G project is a major step in the direction, as their plastic variant is non-polluting and will help increase soil fertility. "The biodegradable plastic that we have developed can perfectly replace the non-biodegradable variant. Our biodegradable plastic does not come from petroleum, but bio-base, which is safe and environment-friendly. When products made out of the biodegradable plastic variant will be thrown in the garbage dump, they will degrade automatically and get absorbed in the soil. This plastic will help increase soil fertility," he said.

The project has now found support in a Gujarat-based private company which has offered help to IIT-G to begin commercial production.

Till now, the IIT-G centre has been producing 7-8 kg of biodegradable plastic at one go. But Katiyar said that a pilot project, with a 100 tonnes per year capacity design, will go on till September this year. Successful completion of the pilot project will pave the way for commercial production, he added.

February 23

IIT Madras to collaborate with THSTI on Applying Advanced Analytical Approaches for predicting pregnancy outcomes, childhood mortality

<http://indiaeducationdiary.in/iit-madras-collaborate-thsti-applying-advanced-analytical-approaches-predicting-pregnancy-outcomes-childhood-mortality/>

Indian Institute of Technology Madras is going to collaborate on applying advanced analytical approaches for predicting pregnancy outcomes with Translational Health Science and Technology Institute (THSTI), an autonomous institute of the Department of Biotechnology, Union Ministry of Science and Technology in Faridabad, Haryana.

The Research Collaboration Agreement was signed today (22nd February 2019) during the IITM-THSTI Conclave on 'Transforming Maternal and Child Healthcare Using Data Science.' It is being spearheaded from IIT Madras by Initiative for Biological Systems Engineering (IBSE), an interdisciplinary group dedicated to pioneering innovative approaches and algorithms that integrate multi-dimensional data across scales to understand, predict and manipulate complex biological systems.

Highlighting the importance of this Research Collaboration, Prof. Gagandeep Kang, Executive Director, THSTI, said, "Our ability to understand, predict and manage human health and disease is changing rapidly with the application of new technologies that can identify changes at organism, organ system, cellular and molecular levels over time by careful study of patients and their outcomes. The analysis of the massive data sets generated by these studies is a critical need for which there has, so far, been limited capacity in India. We look forward to working with the IBSE to address problems in maternal and child health through deep engagement and integration."

The broad objectives of this Collaboration include:

- ∅ Bringing physician-scientists, biologists, engineers and data scientists together to solve public health problems related to maternal and child health,
- ∅ Applying advanced analytical approaches for prediction of adverse pregnancy outcomes, childhood morbidity and mortality,
- ∅ Evaluating maternal and childhood consequences of exposure to environmental pollutants,
- ∅ Studying the role of maternal and childhood nutrition on pregnancy outcomes, immune response to vaccines and childhood morbidity and mortality, and
- ∅ Undertaking capacity building exercises for students and young researchers of either Party in the fields of public health research and data science by enabling student exchange programs and training courses.

Addressing the IITM-THSTI Conclave, Prof Mahesh Panchagnula, Dean (International and Alumni Relations), IIT Madras, said, "The idea of making this conversation between who own the data and those who can use this data is still at its nascency. Going forward, every field is going to have a data-based decision maker. This conversation will define the way we make decisions and lead our life going forward."

THSTI will identify public health and clinical needs and research gaps in maternal, neonatal and child health, design observational studies, clinical and community trials to answer the defined research questions and also acquire clinical, epidemiological and biological data with well-defined experimental methods using standardised protocols under quality-controlled settings. Further, it will also participate in analysis and interpretation of clinical, epidemiological and biological data collected in and also work to obtain data or material advantageous for maternal, neonatal, and child health.

IIT Madras will help acquire data that is complementary (such as pollution exposure data), to clinical, epidemiological and biological data that can generate novel insights for research questions of joint

interest. The Institute will provide insights based on analyses of data for the design of observational studies, clinical and community trials to answer the identified research questions and to generate results that are generalizable to population/subjects that are not part of the study cohorts.

Speaking about this collaboration, Dr. Himanshu Sinha, Associate Professor, Department of Biotechnology, IIT Madras, who coordinates the IBSE said, “We are very excited about this collaboration between THSTI and IITM as it will give us access to one of the most comprehensive and detailed Indian dataset on pregnancy outcomes being conducted by THSTI. We will analyse this dataset to develop India-specific models which could be deployed nationwide. Our ultimate goal is to create algorithms to help clinicians reduce maternal and child mortality rates in India.”