IIT Delhi bags Clarivate India Research Excellence Citation Awards 2021


Clarivate has recognised the most influential researchers and institutions of India since 2004. Source: IIT Delhi

Summary

- Clarivate, a global leader in providing trusted information and insights to accelerate innovation, awards Institutions and individual researchers for outstanding and pioneering contributions.
- The award was given to IIT Delhi in Research Excellence in Social Sciences and Interdisciplinary Sciences category

The Indian Institute of Technology (IIT) Delhi has been awarded Clarivate India Research Excellence Citation Awards 2021 in the Social Sciences and Interdisciplinary Sciences category.

IIT Delhi director V. Ramgopal Rao received the award.

Clarivate, a global leader in providing trusted information and insights to accelerate the pace of innovation, awards institutes and individual researchers for their outstanding and pioneering research contributions.
Arpan Kumar Kar from IIT Delhi’s doe Management Studies also won the India Research Excellence - Citation Awards 2021 for Research Excellence in Social Sciences and Interdisciplinary Sciences category.

“These awards tell the story of some remarkable research done at IIT Delhi. Our researchers are committed to supporting Aatma Nirbhar Bharat’ dream by developing new technologies,” Rao said.

Clarivate has been identifying and rewarding the most influential researchers and institutes of India since 2004. The awards are based on in-depth analysis of data compiled from the Web of Science™ citation index and InCites™ — a research performance benchmarking and analytics tool.

Highly cited research publications that imply high impact research was an important criterion for the analysis, in addition to a series of other bibliometric indicators and a qualitative review of the research output. The analysis was based on the publication output during the period 2015-2020.

IIT Delhi to offer MTech in Machine Intelligence and Data Science from 2022


The Indian Institute of Technology (IIT), Delhi will start a new post graduate programme focused on artificial intelligence from next year, according to officials.

“The School of Artificial Intelligence (ScAI) at IIT Delhi will start a new post graduate programme focused on artificial intelligence. IIT Delhi’s Senate, the faculty body responsible for taking all major educational decisions, has approved the proposed programme titled “M Tech in Machine Intelligence and Data Science (MINDS),” a top official of the institute said.

MTech in MINDS will be a flagship educational programme for the school and is expected to begin in July 2022. This will be the second degree offered by the department. Earlier, the school started a PhD in Artificial Intelligence.

“Our PhD programme has gathered a lot of interest in its first year. We had a 90 pc success rate in PhD students joining ScAI last semester, which is exceptional for a young academic unit like ours, as students generally prefer more established academic programmes. But they chose us, suggesting that we have put together a really strong faculty team in AI,” the official added.

The post graduate programme is planned as an industry-sponsored programme. The students will be expected to work on industry-relevant AI problems, since they will be co- advised by an IIT Delhi professor and a researcher from the sponsoring company. All students with an undergraduate degree in science or engineering will be eligible for the MINDS programme.

“Academic institutions today cannot remain in silos. They must work closely with all stakeholders, including industry, non-profit, and governmental organisations. The M.Tech programme will energise academia-industry collaboration in AI,” said V Ramgopal Rao, IIT Delhi Director.
The MINDS curriculum will include graduate-level courses in core AI technologies like deep learning and data mining, application-oriented courses like computer vision, natural language processing, and AI for healthcare, and also fundamental courses on mathematics underlying modern AI technologies.

**IIT-Delhi, AIIMS Set up Centre for Advanced Research & Excellence in Disability & Assistive Technology**


_This new CoE, CARE-DAT, will open new avenues in design, development and clinical validation of novel products for Neuro Assistive Technologies in Stroke Rehabilitation._

IIT Delhi and AIIMS New Delhi have jointly set up ‘Centre for Advanced Research and Excellence in Disability & Assistive Technology (CARE-DAT)’, a Centre of Excellence (CoE) created under the aegis of the Indian Council of Medical Research (ICMR).

The Center was inaugurated Thursday by Prof V. Ramgopal Rao, Director, IIT Delhi and Dr Randeep Guleria, Director, AIIMS, New Delhi in the presence of senior functionaries from both sides.

The mandate of the Centre is to encourage comprehensive research on an identified problem with the aim of generating new knowledge and improving the holistic understanding of neurological diseases such as stroke and provide assistive technology solutions for rehabilitation of patients.

It is established with the vision - to design novel technological solutions, therapeutic protocols & clinical validation for the solutions in Neuro-assistive technology and thereby providing commercial-ready technology under the “Make in India” initiative of the Government of India.

The Centre for Biomedical Engineering (CBME) at IIT Delhi is already a joint centre of the two institutes. This new CoE is an outcome of active research for the last seven years by joint collaboration of faculty from the CBME and the Department of Neurology at AIIMS. This collaboration has already registered its landmark with the products that have been developed & designed already, five patents have been filed and very good research has been jointly published by the group.

Prof V. Ramgopal Rao, Director, IIT Delhi said, “This new CoE, CARE-DAT, will open new avenues in design, development and clinical validation of novel products for Neuro Assistive Technologies in Stroke Rehabilitation. IIT Delhi and AIIMS faculty currently collaborate on a variety of projects and technologies. We keenly look forward to more collaborations between AIIMS and IIT Delhi, which will benefit the society and result in IP creation, technology transfers and incubation of startups.”

Prof. M.V. Padma Srivastava, Head, Department of Neurology and Principal Investigator for this CoE from AIIMS, New Delhi added, “This is a great initiative by both the institutes. Stroke is leading cause of high mortality and morbidity in world, and in India we are having a high number of patients & economic burden for the rehabilitation of these patients. Innovative solutions that will be developed under this initiative will be really important in framing the future of Neuro-Assistive Technologies in India.”
Prof. Amit Mehndiratta from the Centre for Biomedical Engineering and the CoE’s Principal Investigator from IIT Delhi added, “We displayed two of the products developed at IIT Delhi, which are being clinically validated at AIIMS, New Delhi at the inaugural function. One of these products, robotic exoskeleton for rehabilitation of upper limb, is in Phase 3 clinical trial, which will be part of this newly established CoE activity in next 2 years. We envision that more products and solutions will be developed in future and this Center will be one of the pioneer facilities to encourage research in assistive technologies.”

**IIT-Delhi establishes Professor NK Jha chair for research in chemistry**


Professor NK Jha’s children have endowed a chair to support research and training in chemistry

The Indian Institute of Technology (IIT), Delhi has set up a new chair for research in chemistry. Apoorva Jha Bansal, Aparna Jha Ahuja, Rajesh Jha (IIT Delhi alumnus BTech Mechanical, 1982) and Rakesh Jha (IIT Delhi alumnus, BTech Manufacturing, 1994) have endowed a chair to support research and training in chemistry in honour of their father NK Jha, a former member of the chemistry faculty at IIT Delhi.

Professor NK Jha was amongst the earliest members of the chemistry department starting as a lecturer in 1965 and retiring as a professor in 1997 and serving as head of the department and chairman of the departmental research committee. Jha is well-known for his work on the discovery of hitherto unknown noble gas compounds that he did for his PhD with Neil Bartlett at the University of British Columbia.

At IIT Delhi, he continued research in Inorganic Chemistry and supervised many post-doctoral fellows, over 20 PhD students, and numerous postgraduates. He also contributed significantly to the Institute community serving as President, Board for Student Welfare, Housemaster and Staff Welfare Scheme Secretary.

He was actively involved in guiding curriculum development, setting syllabus, contributing to textbooks through participating in numerous NCERT, UGC, and university committees and workshops.

V Ramgopal Rao, Director, IIT Delhi said, “We hope that Prof Jha’s dedication towards teaching and research inspires every occupant of this chair to give their best to the institute and the country.”

**AIIMS, IIT Delhi launches CAPHER India network for tackling Air Pollution**


The CAPHER-India consists of a Secretariat, Steering committee and an Expert Advisory group with major activities focusing on Capacity building, advocacy and research communication and collaborations.
All India Institute of Medical Sciences (AIIMS) and IIT Delhi together launched CAPHER-India network to address air pollution and its impact on public health in India. The network was inaugurated by Dr. Randeep Guleria, Director, AIIMS and Prof Ramgopal Rao, Director, IIT Delhi.

In his keynote address, Dr Guleria emphasized on need for a ‘multidisciplinary approach’ to mitigate the impact of air pollution on human health. Dr Harshal R Salve Additional Professor at Centre for Community Medicine AIIMS and Dr. Sgnik Dey, Associate Professor at IIT Delhi are co-ordinators for CAPHER India.

Dr Salve claimed that the aim of the of CAPHER-INDIA is to build dedicated network focused on air pollution and health effects research in India and to bring together teams of Indian researchers from various scientific disciplines.

**Tata Power, IIT Delhi to collaborate in renewable energy space**


Tata Power on Saturday said it has inked a pact with IIT Delhi to work together on clean energy and other projects that can be transformed from research and development level to pilot stage.

Tata Power, one of India’s largest private sector integrated utilities, and the Indian Institute of Technology (IIT) Delhi have signed a Memorandum of Understanding (MoU) to collaborate in areas like smart grid technology, clean energy solutions, a company statement said.

Considering the large number of experts with their excellence in different fields in IIT Delhi and Tata Power, there is an immense potential to collaborate between academia, research and domain experts from business with a high transformational impact, it added.

Both the institutions have agreed to work together to identify projects that can be transformed from R&D stage to pilot projects and scaling in areas such as EV infrastructure, artificial intelligence,
machine learning, hydrogen technologies, battery energy storage systems, monitoring and sensing solutions, microgrids et al.

**IIT Delhi to admit 40 students for BTech in Energy Engineering in 2021-2022 session**


IIT Delhi’s BTech in Energy Engineering programme is designed to equip students to tackle energy sector challenges and come up with solutions. Source: IIT Delhi

Applicants must have cleared JEE (Advanced) 2021

The course is being offered by the Department of Energy Science and Engineering

The Indian Institute of Technology (IIT) Delhi’s department of Energy Science and Engineering has launched a BTech programme in Energy Engineering.

Students who have qualified JEE (Advanced) 2021 are eligible for admission to this programme. The new course will admit 40 students for the 2021-2022 academic session.

K.A. Subramanian, head of the Department of Energy Science and Engineering (DESE), IIT Delhi, underlined the need to develop human resources to address various energy and environment-related challenges with foresight.

“This BTech course is designed to equip students with the essential knowledge and skills to take up the energy sector challenges and provide solutions to problems. The goal is to create sustainable energy, which is accessible, available and affordable. Energy is one of the fastest-growing sectors. It is in a critical transition from conventional to clean and renewable energy resulting in ample placement opportunities in energy sectors,” Subramanian said.

IIT Delhi’s 45-year-old Centre for Energy Studies (which is now the Department of Energy Science and Engineering) is one the oldest centres of its kind in the country. DESE imparts education in the energy domain and engages in cutting-edge research through its three MTech and PhD programmes.

“Energy is crucial as it has considerable implications on economic development and environmental sustainability. Hence, many opportunities exist in the energy sector. Students who are passionate about taking up a career in the energy sector may explore the new BTech programme,” IIT Delhi director V. Ramgopal Rao said.

Energy Engineering graduates are likely to find the best technical jobs in core energy sectors and organisations engaged in climate change, conventional energy transition to clean and renewable energy, energy access and security, application of AI and IoT in the energy sector. They can also take up higher studies in leading national and international institutions.
IIT-D’s DAKSH Centre of Excellence for Law & Tech using tech tools and data research to improve legal justice delivery in India


Four projects launched in last one year to improve caseflow management, build AI-based legal assistant, study cheque bounce cases, conduct UI/UX evaluation of high court websites

THE DAKSH Centre of Excellence (CoE) for Law & Technology at IIT Delhi is the first of its kind facility set up in India to rigorously explore the intersectionality of law and technology, and build solutions to different challenges of our justice delivery system harnessing interdisciplinary research.

The CoE was set up in October 2020 with a vision to:

Conduct research on problems of the law and justice system, and create new knowledge, by using methods, tools, and techniques from various disciplines;

Build models and tools for application in the law and justice system; and

Build a community of practice that will bring together members of the judiciary, civil servants, legal practitioners, researchers across disciplines, and industry.

The CoE has already launched four projects, and more are in the pipeline. It aims to establish the Indian law and justice system as an exemplary one globally. Apart from conducting independent research, the CoE envisions serving the Law and Justice sector of the country by identifying the areas that are relevant and have a significant impact on the performance of this sector on the ground.

Explaining its objective, Professor Nomesh Bolia, the Co-ordinator of CoE, Law & Technology, IIT Delhi says, “The CoE’s research and outreach aims to build and nurture a community of practice that is committed to tackling key problems in the law and justice system of the nation through rigorous, data-based research. The CoE stands for a collaborative as opposed to a confrontational approach, respecting the constraints and sensitivities of all institutional stakeholders.”

A brief of launched projects by the CoE over the past year are provided herein.

**Court and case management using simulation modelling**

Indian courts produce massive amounts of data. Indian courts also suffer from pendency issues. Most of the data produced by Indian courts also remains to be digitised in a manner that renders them useful for applying data analytics and machine learning techniques. An important aspect of Indian courts that technology may seek to address in the short term is that of caseflow management (CFM).

What is CFM? In simple terms, it refers to the coordination of court processes and resources to allow cases to progress in a timely fashion from the point of filing to its disposition, regardless of case type or disposition framework adopted. The goal of CFM is to create an environment that assures justice is achieved in each case in a fair, timely, and efficient manner.
A team of researchers at IIT Delhi under the coordination of the DAKSH Centre of Excellence for Law and Technology is seeking to develop a simulator created for Indian court systems with special emphasis placed on the Delhi High Court from the point-of-view of commercial court cases. The simulator considers different categories of commercial cases such as writ petition, original side matters, and appellate matters under commercial disputes, execution, and interlocutory applications.

What is the justification for working on a court simulator? Given the hype around deep learning techniques, there may be an immediate tendency to focus more on applying machine learning techniques to data produced by the court. But equally important is the availability of technology to simulate the workings of courts on computers as well as simulate any number of desired interventions to check how much improvement they have to offer. This is very much in sync with the philosophy of digital twins.

**Employing simulators for public systems brings several advantages:** (i) continuous centralized control of case progress by court authorities (ii) alleviation of the problems of court congestion and delays (iii) enhancement of the quality of litigation process, and (iv) better utilization of limited court resources.

Tentatively the process of creating such a simulator begins with the normative mapping of different commercial case types (writ petition, original side matters, and appellate matters, and appellate matters under commercial disputes, execution, and interlocutory applications). This process can be represented using simple task network diagrams.

Then begins the more challenging task of data collection through various means such as scraping data from the high court websites or conducting a time and motion study in cooperation with the high courts. Rather than coding such simulators using programming languages, there is also the choice of making use of excellent simulation software packages that are available in the market like Anylogic and Flexsim.

Building a simulator is only useful if it can be validated to mirror real-world operations. Only then is it possible to proceed with performing what-if analyses and counterfactual reasoning to infer strategies that, when implemented by the policymakers, may lead to significant improvement in court systems.

Similar research work has been carried out in other countries. For example, a simulation model that was applied to the Southeastern United States court system helped in decreasing the average duration for a case to be processed in the court by approximately 39.9%. The total time until the defendant is ready for trial was also reduced by approximately 20.6%.

On the Indian side, the simulation process can focus not only on delay and workload management but also on other areas of equal importance such as updated management procedures administered by a court administrator, evaluation of the cost, manpower recruitment associated with potential changes, and the layout of physical facilities in the court. Such simulation software shall aid the courts in planning, programming, budgeting for future facility requirements as well as evaluating alternative resource allocation and operating procedures.
**Sahay: an AI based legal assistant for common people**

This project aims to build the prototype of an AI-based legal assistance tool to help common people navigate the area of consumer grievance redressal and dispute resolution. It would help people understand the legal rights they have under specific circumstances, and the options they may have to seek legal relief in case of infringements on such rights. The tool would suggest the nature of such rights, as well as prior cases in response to a person’s description of a situation in natural text format (obtained through a conversational chatbot).

Since case documents are difficult for a common man to follow, relevant cases would also be summarized. A prediction of the probable outcome of the case and its likely duration is also planned.

The tool is being designed using a multidisciplinary approach, and hence the project team is actively consulting and collaborating with legal experts and AI researchers.

**Cheque bounce study in the Indian court system**

This project is examining cheque-bounce cases in district courts to understand the volume of such cases, their duration, the time taken at various stages of the cases, and the causes for delay. This project will contribute to the growing literature on demonstrating the use of quantitative approaches in solving systemic problems in the field of law and justice.

Using the data extracted from the text of orders/judgments and the data provided by e-courts, the project aims to construct a predictive model to estimate the duration of a cheque bounce case based on its characteristics. This econometric model paired with court level data aggregates on the volumes of cases and the prevalence of issues will give a solid foundation to objectively assess recommendations generally made to solve this problem and identify other interventions for efficiency gains.

**UI/UX evaluation of six Indian high court websites**

A well-designed UI/UX is crucial for public institutions’ websites to simplify access to information for citizens they are serving. Its importance is amplified for court websites that need to ensure justice access to a wide spectrum of users. An increasing number of court cases and the country’s advancement in technology make it imperative for the public to access information regarding the judiciary easily.

This research study analyses the accessibility and availability of this information through a detailed study on the User Interface (UI) and User Experience (UX) of six High Court websites – Bombay, Calcutta, Delhi, Karnataka, Madhya Pradesh, and Madras.

Key findings of this study include several low-hanging fruits such as appropriate placement of contact and RTI based information and the need for a detailed analysis of navigation efficiency and aesthetics. The report also highlights some positive aspects about the UI/UX of the High Court websites, such as their speed and good performance on certain Interaction Design Principles.

A detailed report of the study is available [here](#).
The ‘Endowment Merit Scholars Program’ will provide 120 merit scholarships to batches of 15 women and 15 men B.Tech/Dual degree students for each year, the institute said.

The Indian Institute of Technology (IIT) Delhi Endowment Fund Board has announced the establishment of the ‘Endowment Merit Scholarship’ and ‘Endowment Nurture Fund’ to mark the second anniversary of the setting up of the fund board.

“October 31, 2021 will be the second anniversary of IIT Delhi having established the IIT Delhi Endowment Fund.

Launched by the President of India, Shri Ram Nath Kovind, in 2019, the Endowment Fund has created history in setting up a model for other educational institutes to follow. Marking the milestone occasion, the Endowment Fund Board — the governing body of the Fund comprising both alumni and administrative members of IIT Delhi — has announced, as its initial programs, the establishment of the ‘Endowment Merit Scholarships’ and the ‘Endowment Nurture Fund’, encouraging diversity in scholastic excellence and entrepreneurship amongst its students, as the Institute goes further in realising its 2030 vision and strategy,” the institute said in a statement.

The ‘Endowment Merit Scholars Program’ will provide 120 merit scholarships to batches of 15 women and 15 men B.Tech/Dual degree students for each year, the institute said.

“The ‘Endowment Nurture Fund’ aims to offer graduating students the opportunity to be awarded seed funding for their proposed ventures, encouraging them to embark on developing and nurturing their entrepreneurial ideas and aspirations, rather than seeking job placement,” it said. IIT-D has said that the Endowment Board was committing Rs 3.20 crore annually from earnings of the endowment corpus but it “expects the amounts and awardees to grow further in the years ahead”.

On the second anniversary of the fund, Director V Ramgopal Rao said, “IIT Delhi has taken a historic step with the establishment of the Endowment Fund, and it is encouraging to receive the collective support of our alumni towards the realisation of the Institute’s vision. The Endowment initiative has helped the Institute connect with the alumni at a deeper level and engage them on many activities.”

Announcing the establishment of the programmes, Arun Duggal, Co-Chairman of the Fund Board said, “With the growing contributions from our over 54,000 global alumni, we will support many more programs, fostering research advancements and innovation in technology.”

IIT Delhi to Conduct Open House for JEE Advanced Qualified Female Candidates

The Indian Institute of Technology (IIT) Delhi will be conducting an open house for female candidates who have qualified for the Joint Entrance Examination (JEE) Advanced 2021. The “Open House for #JEEAdvanced Qualified Female Candidates” will be conducted on October 23 between 10 am and 5 pm. Interested candidates will have to fill a Google form available at iid.ac.in by October 21, 5 pm to register themselves.

During the open house, students ask questions related to admissions courses etc. Special open houses are held for women candidates as the number of women getting admission to IITs is lower than that of men. This year, the number of seats to be reserved for women will be decided individually by each IIT.

Unlike last year when the female quota was set at 20 per cent. However, for 2021, the IITs will have to ensure that the enrolment of females in each IIT is at least 20 per cent. Although seats offered under the female quota are supernumerary in nature, meaning the seats are created in addition to the existing seats.

To clear doubts and help ease the admission process for women, the institute will hold four sessions of the open house. The first will be conducted from 10 am to 11:30 am on the ‘Introduction and general queries’ and it will be addressed by the Director, Dean Academics, and Dean of Student Affairs, IIT Delhi.

Session 2 will begin from noon up to 1 pm on queries related to Computer Science, Electrical, Maths, and Computing. The third session will be from 2:30 pm to 3:30 pm for queries related to Chemical, Biotechnology and Biochemical, Textile, and Materials. The final session will begin at 4 pm and continue till 5 pm. It will address queries related to Civil, Mechanical, Computational Mechanics, Engineering Physics, and Energy. IITD has already provided the links to the online open house programme on its official website.
Not just IITD, IIT Gandhinagar will also be hosting a live JEE Open House for potential BTech students on October 23 at 6 pm which aims to guide all JEE (Advanced) 2021 qualified students and their parents about the different engineering branches at IITs, and career opportunities to help them make informed choices.

Further, students with a JEE Advanced rank of 1,000 or better (as per the Common Rank List) willing to join IITGN will be given a scholarship equivalent to the entire tuition fee for all four years of their undergraduate programme at the institute. Students and their parents can participate in the IITGN session for free through the institute’s Open House webpage at iitgn.ac.in.

IIT Delhi invites students for lecture on ‘Learning to Learn Through Modeling’

IIT Delhi has invited the schools to nominate their students for SciTech Spins. The schools can reach out to the Institute at adoni@iitd.ac.in; acadoutreach@iitd.ac.in

Indian Institute of Technology Delhi is organizing a lecture on ‘Learning to Learn Through Modeling’ on October 23. The lecture to be followed by an interaction session is organised under the Institute’s academic outreach initiative ‘SciTech Spins’ for school students.

IIT Delhi has invited the interested schools to nominate their students for SciTech Spins. The schools can reach out to the Institute through associate dean, Academic Outreach and New Initiatives at adoni@iitd.ac.in; acadoutreach@iitd.ac.in

The lecture will be presented by Divya Nayar from the Department of Materials Science and Engineering and N M Anoop Krishnan from the Department of Civil Engineering and School of Artificial Intelligence, IIT Delhi. The 2nd lecture will also be live streamed on the institute’s YouTube channel https://youtu.be/6mR-iTueZ2A. Giving a glimpse of the second lecture, Divya Nayar and Anoop Krishnan said, “The lecture will discuss how one can model, simulate and predict real-life phenomena by making use of powerful computers.”

The first lecture under the SciTech Spins initiative was organised on September 11, 2021 on ‘Design Thinking - A Powerful Tool for Problem Solving’. IIT Delhi will give e-certificates to all registered students attending SciTech Spins and invite them for ‘Open House’, an annual intellectual fest for
school students where they can connect with leading researchers in the field of Science and Technology.

**IIT Delhi is holding the second SciTech Spins online lecture for school students; invites schools to nominate students**


IIT Delhi professors to reply to students’ queries in second lecture of SciTech Spins.

**Summary**

- The academic outreach initiative will show how real-life phenomena can be studied by using powerful computers
- All registered students will receive e-certificates and an invitation to attend the annual intellectual fest Open House

Springs and molecules — what do they have in common? How can we use computers as a microscope? Can computers beat the human brain?

These and many such questions will be answered by the Indian Institute of Technology (IIT), Delhi, professors during the second lecture and interaction session that the institute’s academic outreach initiative, SciTech Spins, is organising for school students on October 23.

Divya Nayar from the department of Materials Science and Engineering and N.M. Anoop Krishnan from the department of Civil Engineering and School of Artificial Intelligence, IIT Delhi, will deliver the lecture ‘Learning to Learn Through Modeling’, which will be streamed live on IIT Delhi’s YouTube channel ([https://youtu.be/6mR-iTueZ2A](https://youtu.be/6mR-iTueZ2A)).

“Often, it is difficult to perform experiments under certain extreme conditions, such as for studying processes occurring in deep sea, at high altitudes or at high temperatures. Sometimes there is a need to substantiate and understand the experimental findings, for instance, why does oil never mix with water, but common salt does?” Nayar said.
“Sometimes new predictions are necessary for designing experiments. A computer can act as an effective tool in understanding ideas without actually performing experiments. The lecture will discuss how one can model, simulate and predict real-life phenomena by making use of powerful computers,” Nayar said.

IIT Delhi will give e-certificates to all registered students attending SciTech Spins and invite them for Open House, an annual intellectual fest that provides an ideal platform for school students to connect with some of the leading researchers in the field of Science and Technology.

Schools wishing to nominate their students for SciTech Spins may reach out to the institute through Associate Dean, Academic Outreach & New Initiatives, IIT Delhi, at adoni@iitd.ac.in or acadoutreach@iitd.ac.in

The first lecture under the SciTech Spins initiative was organised on September 11, 2021. The lecture ‘Design Thinking - A Powerful Tool for Problem Solving’ received an overwhelming response from school students from across the country.

**IIT Delhi Establishes SMITA Research Lab Centre of Excellence in Smart Textiles**


IIT Delhi has converted its state-of-the-art SMITA (Smart Materials and Innovative Textile Applications) Research Lab to a Centre of Excellence (CoE) in Smart Textiles. The SMITA Research Lab CoE in Smart Textiles has been established to work in the area of Smart and Functional Textiles using emerging materials and process technologies, which can directly benefit the country’s textile industry.

Major thrust areas of this CoE would be:
(a) Development of highly functional and high-performance textile materials using nanomaterials,
nanofibres, and nano engineered materials.

(b) Development of wearable textiles, also known as Electronic-Textiles.
(c) Development of functional textiles for healthcare applications.

Textiles is an important area for India as it is the second largest employer after the agriculture. Textiles contribute significantly to our economy through both domestic consumption and exports. However, apparel sector is facing stiff competition from other low cost producing countries. On the other hand, Technical Textiles, which are technology driven, are widely used in multiple sectors ranging from healthcare to aerospace and can fetch good returns for the Indian textile industry. Keeping this in mind, the Ministry of Textiles, Government of India, has recently launched a National Technical Textile Mission (NTTM) and laid special emphasis on the development of Technical Textiles in the country.

SMITA Research Lab at IIT Delhi has been actively engaged in this area for the last several years and has contributed immensely through research and development. It has been instrumental in developing several novel technologies for the first time in the country, such as nanomaterial based antibacterial, antiviral and self cleaning finishes, nanofibre based nostril filters (also known as Nasofilters) and automobile filters, continuous electrospinning machine, textile based sensors and energy harvesting devices, high performance fibres to name a few.

SMITA Research Lab has been partnering with Indian Industry and startup companies and has taken several of these technologies from lab-scale to commercial domain.

“IIIT Delhi has converted its “Smart Materials and Innovative Textile Applications (SMITA) Research Lab” to a Centre of Excellence (CoE) in Smart Textiles to further enhance the impact that IIIT Delhi can make in the technical textile domain and to expedite the developments in this crucial area. Creation of the CoE has brought together researchers from different disciplines to develop futuristic smart textiles”, said Prof. V Ramgopal Rao, Director, IIT Delhi.

Dr. Ashwini Agrawal, Professor in the Department of Textile and Fibre Engineering, IIT Delhi and the CoE’s Coordinator said, “Smart Textiles and Wearable Electronics are being researched worldover and it is predicted that this will bring unprecedented changes in elderly care, health care, communications, and sports, etc. The CoE will work towards development, design and integration of smart functionalities into textile substrates.”

SMITA Research Lab, with the generous funding from the Ministry of Textiles, Ministry of Education, Department of Science and Technology, and the Industry partners under various research projects, has been able to establish state-of-the-art research facilities, which are unique in the country and can be used for expeditious development of new smart technologies. Prof. Manjeet Jassal, CoE’s Co-coordinator said the CoE will help enhance the visibility of the work being carried out by the Institute in the area of Smart and Technical Textiles and encourage faculty members from other disciplines and institutions to explore their interest in Smart Textile Materials.
Ill-fitting or odd-size garments is not good news for e-commerce firms and malls, as buyers typically return such garments.

Textiles ministry is developing an India-specific standardized size chart for the textiles and garment industry with the help of the NIFT and 3D body scanners, while the IIT-Delhi has signed an agreement with New Delhi-based deeptech startup Mirrorsize to use an AI-powered app to achieve a similar goal but with a different approach.

For more than a decade, the Indian government has been attempting to provide people of this country the convenience of walking into a mall and buying the right-fitting India-size shirt, trouser or dress, rather than an ill-fitting garment that is a tweaked version of another country’s standardized size.

The textiles ministry is developing an India-specific standardized size chart for the textiles and garment industry with the help of the National Institute of Fashion Technology (NIFT) and 3D body scanners, while the Indian Institute of Technology-Delhi (IIT-Delhi) has signed an agreement with New Delhi-based deeptech startup Mirrorsize to use an artificial intelligence (AI)-powered app to achieve a similar goal but with a different approach.

In March 2018, the textiles ministry announced that NIFT would undertake a study to come up with a size chart for Indians and complete the project in 2-3 years. The National Sizing Survey of India project cost was pegged at ₹31 crore, with the textiles ministry contributing ₹21 crore and NIFT the rest. The chart was to be prepared with the help of 3D scanners that would take computerized body measurements of 25,000 men and women, aged 15 to 65, in six cities—New Delhi, Kolkata, Mumbai, Bengaluru, Shillong, and Hyderabad. The project remains a work in progress.
Mirrorsize will not use the unwieldy and expensive 3D body scanners. Instead, it hopes to do the trick with the help of a 3D body measurement app that uses AI, advanced computer vision, deep learning models and mesh processing to instantly provide precise body measurements.

“Our patent-pending technology allows a user to wear skin tight or regular clothing while using the app by using a combination of image processing and data analytics to display body measurements,” said Arup Chakraborty, founder and chief executive officer, Mirrorsize.

The Mirrorsize app, available on iOS and Android devices, also shows users their 3D avatars. The installation of 3D body scanners is typically restricted to shopping malls and other public spaces because of its size and cost. However, the app can be used by anyone in the comfort of their homes by simply downloading it on their smartphones.

Once the Mirrorsize app captures the data, “IIT-Delhi will use data analytics and statistical modelling to come up with up to 60 standard sizes for all body types in India. The app is expected to be ready for use by the end of this year”, said Deepti Gupta, professor of the department of textile and fibre engineering at IIT-Delhi.

People typically think of sizes as small, medium, large, and extra large, she said. However, “our system will come up with 50-60 very customized sizes for textile and garment manufacturers”, she said.

One reason for introducing so many sizes instead of having four standard sizes is that a ‘standardized size’ would require approval from the Bureau of Indian Standards (BIS), according to Gupta. Second, Indians who span across different geographical regions in India, have different body types. Third, production of garments can be made not only to cater to the different body types but also according to the size requirements of a specific industry.

IIT-Delhi will require the support of the government and industries to popularize the use of the app, Gupta said. “We have no external funding. We will be exhorting our own students to use the app to begin with,” she said. “We hope that the industry will come forward and also provide incentives to users to voluntarily use the app,” she said. IIT-Delhi will not make the app available to children. "We will start with the 25-45 age group. We will ensure that the data of potential users will be protected though they volunteer for this project," Gupta said.

The approaches are different, but the projects by NIFT and IIT-Delhi augur well for companies that are associated with the textiles and garments industry.

Ill-fitting or odd-size garments is not good news for e-commerce firms and malls, as users typically return such garments either in person or by courier, adding to the supply chain costs of these firms. Besides, designers are forced to take measurements of clients according to the US or UK size charts and convert them to the Indian scale before creating garments, adding to their cost and angst. The current projects have the potential of reducing the need for alterations and returns because of ill-fitting garments.

Countries that have successfully completed national sizing surveys include the US, Canada, Mexico, the UK, France, Spain, Germany, Korea, China, and Australia. With the help of such projects, India may soon join this select band.
BTech students of NIT Sikkim will now be eligible for direct admission to IIT Delhi PhD programmes

October 9, 2021  https://www.indiatoday.in/education-today/news/story/btech-students-of-nit-sikkim-will-now-be-eligible-for-direct-admission-to-iit-delhi-phd-programmes-1862909-2021-10-09

With recent MoU between the two institutes, BTech students of NIT Sikkim will now be eligible for direct admission to IIT Delhi’s PhD programmes.

IIT Delhi and NIT Sikkim have recently signed an MoU under which BTech student from NIT Sikkim would be eligible for direct admission to IIT Delhi’s PhD programmes without the need to qualify GATE or any other national-level exam.

The MoU, which was signed by Prof V Ramgopal Rao, Director, IIT Delhi and Prof MC Govil, Director, NIT Sikkim, will also facilitate faculty and student exchange programmes between the two institutes.

Direct admission for NIT BTech students

The undergraduate students of NIT Sikkim with a CGPA of 8.00 at the end of their 6th semester (03 years) will be eligible to apply to IIT Delhi for a summer project and complete their 04th year (7th and 8th semesters, or either) there.

Since they will enter IIT Delhi with a minimum CGPA of 8.00, the requirement of GATE for PhD is waived off.

They are expected to demonstrate sufficient merit in coursework and research during their 7th and 8th semesters of the BTech.

After the completion of their fourth year at IIT Delhi, the students would be considered for an early admission to the institute’s PhD programmes based on their academic performance.

How the MoU will benefit students

Speaking of the MoU with IIT Delhi, Prof. MC Govil, Director, NIT Sikkim said, “I am confident that our association with IIT Delhi will immensely benefit our students and faculty with regard to research and innovation.”

“I hope that it will usher in a new era of technological and academic brilliance in the northeast, which will help the region develop at a brisk pace,” he said.

While welcoming the MoU with NIT Sikkim, Prof. V Ramgopal Rao, Director, IIT Delhi said, “NIT Sikkim is a prominent technology institute in the North-Eastern region of the country.”

“At IIT Delhi, NIT Sikkim students will get exposure to a world class research infrastructure, which, I am confident, will be helpful in shaping their careers. I am hopeful this MoU will be a win-win for both the sides,” he said.

Mentorship programme
Under the MoU, a mentorship programme is also being envisaged in which faculty members from IIT Delhi will act as mentors for each of the departments of NIT Sikkim.

This will facilitate the exchange of faculty/staff at a departmental level, which can be done via both online/offline mode. This programme may also be extended to include creation of common virtual/physical laboratory facilities.

Along with the faculty, NIT Sikkim and IIT Delhi will also exchange BTech, MTech, MSc students, and research scholars.

IIT Delhi would not charge any academic fees from the NIT students since they would be paying a regular academic fee at their parent institute.

**IIT Delhi to Set up JK Paper Centre of Excellence**


Indian Institute of Technology (IIT) Delhi on Wednesday signed a memorandum of understanding (MoU) with JK Paper to set up the ‘JK Paper Centre of Excellence (CoE)’ in paper packaging.

Indian Institute of Technology (IIT) Delhi on Wednesday signed a memorandum of understanding (MoU) with JK Paper to set up the ‘JK Paper Centre of Excellence (CoE)’ in paper packaging.

AS Mehta, President and Director, JK Paper; Professor V Ramgopal Rao, Director, IIT Delhi and senior functionaries of the institute were present at the MoU signing event.

The CoE will bring synergy and coherence in the activities being carried out at the institute in this domain. Under the CoE umbrella, apart from a multitude of sponsored research projects, there will be executive development programmes, expert lectures, training and knowledge transfer and other projects of mutual interest,” IIT Delhi said in a statement.
“It is a privilege to embark on a collaborative journey with IIT Delhi. The paper and packaging industry is undergoing massive transformation with an ever-increasing need for sustainable and functional products thereby driving new innovations. The proposed CoE would combine the cutting-edge research at IIT Delhi with application know-how of JK Paper to accelerate innovation in Paper and Packaging and develop solutions for a variety of end-use applications of our customers,” said Mr Mehta.

Welcoming the collaboration, Prof Rao said, “We are happy to be associated with JK Papers and look forward to the immense research and development opportunities this CoE will bring and excited to work together on futuristic technologies of mutual interest”.

Collaborations between industry and academia will benefit IIT Delhi in the pursuit of excellence and will further strengthen the public research and innovation ecosystem of India, Prof Rao added.

“The strong brand equity of JK Paper has been built through the use of latest technologies, continuous research and development and innovation and we are happy to embark on the path of collaborations,” said Prof Anurag S Rathore, Dean, Corporate Relations, IIT Delhi.

Prof Ashwini K Agrawal, who will be the CoE’s Coordinator, said the Centre of Excellence aims at developing new technologies for the paper and packaging industry in the country.

The collaboration would bring together the knowledge of IIT Delhi in emerging areas of sciences and engineering and expertise of the industry in manufacturing to create new knowledge, novel products, and train research manpower in the sector, he added.

Delhi govt, IIT-Delhi sign pact to work on road safety projects

The agreement paper was signed by officials of IIT-Delhi’s Foundation for Innovation and Technology Transfer (FITT) and Transport department of Delhi government during a road safety summit.
Delhi on Friday to work on road safety projects, including vehicle crash data analysis and identification and rectification of black spots which result in fatal accidents. The agreement paper was signed by officials of IIT-Delhi's Foundation for Innovation and Technology Transfer (FITT) and Transport department of Delhi government during a road safety summit.

In a tweet, Transport Minister Kailash Gahlot who inaugurated the summit said, "Today, Delhi is glad to partner with IIT-D to further data driven research on road safety, enforcement & execution including scientific crash site analysis. Delhi roads will be safe only when motorists, cyclists, pedestrians all start feeling safe."

Gahlot also launched a six-month intensive social media campaign to raise awareness on speeding, correct helmet and seat belt use and drunk driving.

**IIT Delhi researchers develop catalytic technology for synthesis of chiral molecules**


Researchers at Indian Institute of Technology (IIT) Delhi have developed a catalytic technology for the sustainable and economical synthesis of chiral molecules which are essential building blocks to produce pharmaceuticals, agrochemicals and biologically active compounds.

According to the research team, India is heavily dependent on importing (above 85 per cent) Active Pharmaceutical Ingredients (APIs), and a significant proportion of those APIs are chiral molecules.

"The developed catalytic technology may play a crucial role in decreasing the country"s dependence on the import of the Active Pharmaceutical Ingredients, which also means lowering of the input cost for the industry that would encourage it to pass on the benefit to the society," said Kuntal Manna, Professor at IIT Delhi"s Chemistry department.

He said the existing methodologies "are costly and not eco-friendly".

"To tackle this problem, the research team developed a Metal-Organic Framework-based catalytic technology using inexpensive natural feedstocks and abundant metals for the sustainable and economical synthesis of enantiomerically pure chiral molecules," Manna said.

**IIT-D opens Rs 500 Cr central facility to all researchers in India**


Central Research Facility has been significantly augmented with several state-of-the-art high-end experimental facilities
The Institute of Technology, Delhi (IIT-D) has developed a new platform whereby anyone from across India can create a user account, log-in to the Central Research Facility (CRF) and book an instrument online for their research work.

With this step, all facilities of the CRF on the Institute’s main campus in New Delhi as well as in the Sonipat campus in Haryana are now available for researchers from across the country.

“Rs. 500 crores have been either spent or committed by IIT Delhi to establish various high-end facilities at the CRF. The main sources of funding include the Institutes of Eminence (IoE) grant, special Ministry of Education (MoE) grant, IIT Delhi grant through Industrial Research and Development, DST’s Sophisticated Analytical and Technical Help Institutes (SATHI) project, HEFA loan etc. Today, we have over 50 different facilities, owned and/or adopted by the CRF, which are already available to the users. This number is likely to get doubled in the next two years”, said Prof V. Ramgopal Rao, Director, IIT Delhi.

In 2017, envisaging the growth of CRF, a new building was constructed at IIT Delhi’s extension campus in Sonipat. Another new building with a much larger area is also under construction in Sonipat right now, which will be completed by March 2022.

IIT Mandi, IIT Delhi and Yogi Vemana University Researchers Develop Photocatalysts

October 1, 2021  http://bweducation.businessworld.in/article/IIT-Mandi-IIT-Delhi-and-Yogi-Vemana-University-Researchers-Develop-Photocatalysts/01-10-2021-406806/

The multi-Institutional team develops leaf-like catalytic structures for solar-driven production of green hydrogen and ammonia
(L to R) Dr. Venkata Krishnan, Associate Professor, School of Basic Sciences, IIT Mandi, along with his research scholar Ashish Kumar

A multi-Institutional team from IIT Mandi, IIT Delhi and Yogi Vemana University have replicated the structure of the leaf in a low-cost inorganic catalyst to enable light-induced production of green hydrogen and ammonia.

Results of their recent work, a team led by Venkata Krishnan, Associate Professor, School of Basic Sciences, IIT Mandi, has published an article in the prestigious Journal of Materials Chemistry A. The article is co-authored by his research scholar, Ashish Kumar from IIT Mandi. The other authors include his collaborators, Saswata Bhattacharya and Manish Kumar from IIT Delhi, and Navakoteswara Rao, and Prof. M.V. Shankar from Yogi Vemana University, Andhra Pradesh.

As early as 1912, a pioneering Armenian chemist, Giacomo Ciamician, in his paper titled 'The Photochemistry of the Future,' challenged the scientists of his day to imagine using sunlight to produce chemicals much like plants do in photosynthesis. This challenge was met in the 1970s with researchers showing the possibility of harvesting the sun’s light energy to produce chemicals through the use of special light-activated materials called photocatalysts, thus heralding what is now known as the photocatalysis era. Since then, many photocatalysts have been discovered to bring about light-enabled reactions for various purposes, and studies are ongoing in many areas of photochemical synthesis to discover new photocatalysts and improve existing ones for better performance.

Hydrogen is a green energy source and ammonia is the backbone of the fertilizer industry. Both hydrogen and ammonia are being manufactured through processes that consume large amounts of energy in the form of heat and also release greenhouse gases. The use of photocatalysis in the production of these two chemicals can save not only energy and costs but also have significant environmental benefits.

The researchers have addressed the main bottlenecks of photocatalysis – poor light absorption, photogenerated charge recombination and the need for catalytically active sites to use sunlight effectively to drive chemical reactions. They have improved the properties of a low-cost photocatalyst, calcium titanate through an approach called ‘defect engineering’ and have shown its efficacy in producing green hydrogen and ammonia in two light-driven reactions. Specifically, the
defect engineering was done by incorporating oxygen vacancies in a controlled manner. These oxygen vacancies act as catalytically active sites to promote the surface reactions and thereby enhance photocatalytic performance.

The scientists studied the structural and morphological stability of the defect engineered photocatalyst and showed that their photocatalyst showed excellent structural stability as the engineered oxygen vacancy defects were well-retained after recyclability studies. They used the catalyst to produce hydrogen from water and ammonia from nitrogen, using the sun’s rays as the activator at ambient temperatures and pressures.

Venkata Krishnan expects that their work would provide a direction for the smart design of defect-engineered three-dimensional photocatalysts for green energy and environment-oriented applications.