IIT Delhi relaxes norms after 22% students say they tested Covid-19 positive

Of the 3,910 students who participated the survey, which was conducted between Sunday and Tuesday, 857 said they contracted the infection since March.

Officials at the Indian Institute of Technology, Delhi (IIT-D) announced several relaxations, including of deadlines and attendance norms, after 22% respondents of an internal online survey said they tested positive for the coronavirus disease between March and April.

More than a tenth of students surveyed said they were considering withdrawing from the ongoing semester due to the stress caused by the pandemic and associated personal grievances, while over 40% said they wanted the semester halted for a while.

Of the 3,910 students who participated the survey, which was conducted between Sunday and Tuesday, 857 said they contracted the infection since March, while 61% said a family member, or someone close to them, tested positive in the same period.

HT has seen a copy of the survey report.

The respondents included students enrolled in undergraduate, postgraduate and research programmes, as well as those pursuing diplomas and dual degree courses at the institute.

The institute currently has over 10,000 students enrolled across courses.

IIT Delhi PG, PhD admissions 2021: Application ends tomorrow, test dates updated

IIT Delhi has invited applications from candidates to apply for PG and P.h.D courses.

IIT Delhi has invited applications from candidates to apply for PG and P.h.D courses. The application process is underway. Interested and eligible candidates can apply for the courses online at the official website of IIT Delhi at home.iitd.ac.in
The last date of online submission of the application form and application fee is April 30, 2021. Earlier, the last date to fill the application form was April 24. The application process was started on March 15.

According to the new notification released by IIT Delhi, the entrance examination and interview will be conducted between May 17 to June 23. Earlier the date range for test and interview was between May 10-23.

**Application Fee:**

Candidates belonging to the General/OBC/EWS category are required to pay for each application form a fee of Rs. 200/- and the candidates belonging to SC/ST/PwD categories are required to pay Rs. 50/-. The bank charges will be borne by the candidate.

**Other Details:**

15% seats will be reserved for SC and 7.5% for ST candidates.

27% seats are reserved for Non-Creamy layer OBC candidates. All candidates applying for admission under this category should produce the OBC (Non-Creamy Layer) Certificate. 10% seats are reserved for EWS (Economically Weaker Section) candidates.

5% seats in the respective categories are reserved for the Persons with Disability (PwD) in the Postgraduate courses and P.h.D. Programs.

Due to the unprecedented rise in COVID-19, it has been decided by the Senate that the conduct of interviews for admission to the P.h.D programme will be done online through videoconferencing.

For eligibility criteria, and other details candidates are advised to check the official notification of IIT Delhi at https://owncloud.iitd.ac.in/nextcloud/index.php/s/GFsNedN7PZpiPAF

**Startup at IIT Delhi’s Incubator Develops Multipurpose Surface Disinfectant**


Ramja Genosensor, a startup incubated at IIT Delhi, has developed a multipurpose organic hybrid surface disinfectant spray known as NANOSHOT. The spray is based on nanoparticles and is completely free of alcohol or hypochlorite. One shot of NANOSHOT will be effective for 96 hours (4 days).

Dr. Pooja Goswami, Founder, Ramja Genosensor said, “It has been tested and certified that NANOSHOT starts killing microbes i.e. virus, bacteria, fungi within 30 seconds of its application on the surface and kills 99.9% microbes in 10 minutes.”

She added, “In addition, it is completely non-toxic as there were no allergic reaction, rashes or irritation observed during the test at NABL accredited laboratory.”

This one solution comes in three different spray packs for different surfaces.
The handy mist spray kit can sterilize car dashboards, car seats, tablets, wallets, books, luggage, lift control panels, TV remotes, microwaves, and other products.

Shotgun Spray is suitable for large areas such as receptions, subways, escalators, elevators, sofas, dining areas, meeting halls, metros, buses, schools, washrooms, restaurants, trains, railway stations, airports, and security checks.

There is also a regular spray that is useful and simple to use on kitchen slabs, dining tables, bags, bottles, refrigerator surfaces, chairs, keys, showcases, glass objects, etc, and other similar surfaces.

Dr. Goswami further said, “Germ-free surfaces and proper sanitation remain our priority. We have been working on developing more cost-effective and a healthy solution to ensure adequate sanitization in the indoor surroundings. With an efficiency rate of 99.9% on the tested microbes, and the effects lasting four days there is no need to reapply NANOSHOT every few hours and the amount used per unit area is lower.”

**IIT-Delhi students want semester halted due to Covid stress**


A majority of IIT Delhi students want the current semester to be halted for now because of the stress they are under because of the Covid situation in the country, according to a survey by the Board of Student Welfare. The students have suggested that the rest of the semester be conducted in July.

Most students said since they or their family members were suffering from Covid, they were having difficulty attending online classes and doing regular assignments.
A majority of IIT Delhi students surveyed by the Board of Student Welfare have said they want the current semester to be halted for now due to the stress they are under because of the Covid situation in the country. Students have suggested that the rest of the semester be conducted in July. The board had surveyed 450 students on April 19. A statement from the board said that of the respondents, around 64% had family members suffering from Covid, and 14% of the students were themselves infected. Out these, the statement said, 85% were at home and 12% lodged at government facilities.

The survey asked students about their well-being and 34% said they were not good but could cope; 21% said that the recent times were very, very harsh; 16% said times were not good and they needed help; 16% said they felt they were doing better than others and only 10% said they had no problems.

Most students said since they or their family members were suffering from Covid, they were having difficulty attending online classes and doing regular assignments.

“The mental peace of the students is degrading, seeing the number of cases and difficulties faced after you test positive (medicines not available, beds not available),” the statement said.

“Some are stressed because they are unable to find jobs or internships which are very important for them at this point... Many underperformed in minors (exams) due to the stressful environment,” it added.

Students also said they felt they are not getting much help as “professors have not been very lenient and have been giving strict deadlines for almost all courses. In scenarios like these, if a student has Covid themselves or someone in their family has it, they miss out on a lot, which ultimately affects their grades significantly,” said the statement.

Among other suggestions was a 7-10 day break immediately to cope with the present situation, anxiety and stress; taking regular feedback from students’ reduction in academic pressure; welfare sessions to mental health and reduction in financial burden.

“We had been hearing from individual students about the difficulties that they are facing: health, financial, academic, personal. So we requested the Board of student welfare to reach out informally to them to get a better sense of how they are doing and what we might all do together to cope with the situation. We’re exploring various options and hope to make some announcement to the IIT Delhi community very soon,” said Professor Reetika Khera, associate dean Students’ Welfare.

**COVID-19: IIT Delhi PhD student dies in her hometown**


Coronavirus: The student was in quarantine at home as there was no space in hospitals, a relative said.

A research scholar at the Indian Institute of Technology (IIT) Delhi, Devanshi Mishra, has died today. People close to her said that she was suffering from COVID-19. Devanshi, who did not use her last
name, was a student of the Kusuma School of Biological Sciences (KSBS) at IIT Delhi. The student was a resident of Kailash Hostel at IIT Delhi.

Devanshi had done a BTech with a CSIR-Junior Research Fellowship (CSIR-JRF) and was working on insulin signalling as her research topic in the laboratory of Chinmoy Sankar Dey, professor, KSBS. She had written a paper on “diabetes co-morbidity and COVID-19” in February 2021.

The incident was confirmed by V Ramgopal Rao, director, IIT Delhi, who said that the student had left the hostel and gone home where she was found to be COVID-19 positive and hospitalised.

“She left the hostel on April 12 without informing anyone that she was going back home. [There’s] no information regarding COVID-related symptoms when she left. In her hometown she was tested for COVID and found positive after which she was hospitalised but couldn’t survive it. We are trying to contact her supervisor and mail the nodal officer so that her primary contacts could be notified,” said Rao.

However, a relative told Careers360 that she was unable to find a place in hospital. He said: “They had consulted a doctor who told her to home quarantine. He gave medicines also. Then, in the morning, we got to know about the incident...There are no beds available in hospitals, how can she be hospitalized then? All those things we hear are true, there are no beds, no medicines. If you are a big politician then there is some hope.” According to hostel records, her parents’ home is in Ghaziabad, Uttar Pradesh.

The IIT Delhi director also said that there are 40 active COVID-19 positive cases in the institute. In March IIT Delhi halted the return of students to the campus as the cases of COVID-19 began rising; then, on April 16, IIT Delhi allowed students to go home as its campus quarantine facility was already "full to capacity".

Another IIT grappling with rising cases of COVID-19 is IIT Roorkee where the number of cases crossed 101 on April 15. There, a student in the quarantine facility who had tested negative for COVID-19, collapsed and passed away.
ISRO to support eight joint research projects of IIT-D

They had signed an MoU in 2019 to strengthen research collaboration

Indian Institute of Technology, Delhi on Tuesday said that the Indian Space Research Organisation (ISRO) has announced that it will support eight joint research projects mooted by the Space Technology Cell (STC), IIT-Delhi. The ISRO will support the projects under its RESPOND programme with varying duration of 1-3 years, it added.

The institute said that the Space Technology Cell was set up at IIT, Delhi under an MoU signed between the ISRO and IIT-D in November 2019 with an aim to strengthen the research collaboration between the two organisations and to carry out focused research projects in the space technology domain with specific deliverables. Since then, eight collaborative research projects have been announced.

Some of the projects include developing a system for drought and flood forecasting and understanding land-atmosphere interactions, a project that aims to understand the plasma dynamics in electrode-less thrusters, which are used for electric propulsion and have a longer lifespan than their electrode-based counterparts, an indigenous sensor based real time flood warning smart system and other projects.

V. Ramgopal Rao, IIT-Delhi director said, “IIT-Delhi is committed to taking its interactions with the ISRO to the next level. The institute has some of the world’s experts in various technology domains such as land-surface modelling, remote sensing, molecular dynamics simulations etc. who will extend their expertise to the ISRO and play a key role in making its future endeavours successful.”

IIT-Delhi to set up Covid-19 care facility, seeks help from docs living on campus

IIT-Delhi currently has around 23 active Covid cases, of which 15 are students.

The Indian Institute of Technology, Delhi (IIT-Delhi) on Monday announced that it will set up a Covid-19 care facility for students and staff on its campus, in view of the fact that the city’s medical infrastructure was overburdened by the “unprecedented crisis”. It also sought help from doctors residing on campus to provide consultations.

In an email sent to students, faculty and staff members on Monday, IIT-Delhi director V Ramgopal Rao said, “As you know, we are facing an unprecedented crisis. Medical infrastructure within the campus and outside is unable to cope with the rise in cases. Institute is working with the Delhi government to create a Covid centre within the campus which will be used strictly for Covid positive persons on the campus, including students. While those living in homes are allowed to isolate themselves, all Covid positive students living in hostels right now have to go to Delhi government...
Covid centres. This is causing huge issues for students. We are working with the local administration to see if we can create a facility on campus...hopefully, we will be able to work out something in the next day or two.”

IIT-Delhi currently has around 23 active Covid cases, of which 15 are students.

The “unavailability of doctors” on campus is a major problem, Rao said. “Four of our own doctors are down with Covid and we do not have enough doctors for consultations. I am aware that spouses of many faculty, staff, and PhD students are registered medical doctors serving in various clinics and hospitals. Parents of many students are also doctors.”

He appealed to these doctors to come forward and help. “If you have a doctor at home, and are willing to provide one hour a day for consultations to the IIT-Delhi community, please provide their contact details. Institute will contact them and connect them with the persons who need help and advice,” the director said.

As Covid cases spike, IIT-Delhi tells students: Safer to go home to family

IIT-D Director V Ramgopal Rao told The Indian Express around 25 students on campus have tested positive in the last one month, and that the quarantine facility inside the campus was “small” and could accommodate “10 people at best”.

In the last one month, 25 IIT-Delhi students have tested positive for Covid.

Amid rising cases of Covid-19, The Indian Institute of Technology Delhi administration has written to research scholars and those students not involved in laboratory or project work saying it would be “safer” if they “go home and be with their family”.

IIT-D Director V Ramgopal Rao told The Indian Express around 25 students on campus have tested positive in the last one month, and that the quarantine facility inside the campus was “small” and could accommodate “10 people at best”.

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JNU too has ‘advised’ students to return home after active cases on campus tripled over the last 10 days from 21 to 64.

In an email sent to all “research Scholars and students not doing laboratory courses/projects”, IIT-D Deputy Director (Strategy & Planning) Ashok K Ganguli said a meeting was held with “key administrative personnel (part of the Covid Committee) and Director to review the alarming situation arising out of increasing Covid cases in the country, Delhi as well as our campus”.

“Several students have tested positive today and several mess staff members have called in sick. The Gulmohar facility for home quarantine of students is full to capacity now. In addition, there are many cases amongst faculty and their family members as well as staff and their family members,” he wrote Friday.

“While faculty members and staff members are isolating within their homes, this option is not available to hostel residents. As per government regulation they have to be shifted to government isolation centres anywhere in Delhi. These centres are also getting fast overwhelmed,” Ganguli said.

He added that the weekend curfew imposed by the Delhi government might get extended.

'Delhi Corona App' updated to serve in current crisis

The Delhi government has updated its Corona app, which was launched in early 2020, to help track availability of hospital beds and ventilators for Covid-19 patients, and schedule vaccine doses, among others.
Developed by the state Information Technology Department and IIT-Delhi to contain a self-assessment tool, guidelines and all important helplines to ensure right information to people during the pandemic last year, it had served the purpose of accessing lockdown services like ration, e-pass and hunger relief/shelter centres.

Now, the updated Delhi Corona app is serving to access e-pass for emergency travelling, booking for vaccination, information regarding beds in Delhi government hospitals, for plasma and many other health services.

Chief Minister Arvind Kejriwal on Sunday said that all government and private hospitals have been given separate login IDs to provide authentic information.

As of now, lockdown has not been imposed in the national capital, though daily Covid cases have risen multi-fold. Last year, Delhi had registered the highest single-day spike of 8,500, while this year, over 24,000 new cases were reported on Saturday.

In its attempt to break the chain of infection, the Delhi government has imposed certain restrictions, including night curfew and weekend curfews.

Sources in Delhi government told IANS that two private hospitals in Delhi have been found giving inaccurate information about beds availability and they will be penalised for violating Delhi Disaster Management Authority (DDMA) norms.

**IIT-Delhi Offers Online Course in Project Management**


Learners will have to maintain 60 per cent attendance to get the certificate.

The online application process is open and will close on June 7. Shortlisted applicants will be informed by June 11 and they will have to submit their fee.

The Indian Institute of Technology (IIT) Delhi has launched a certificate program in project management. The classes will start from June 23, onwards. It’s a five-month-long course offered by
Continuing Education Programme (CEP), IIT-Delhi. Classes will be held on Sundays from 6:45 PM to 9:45 PM. Anyone who has completed a graduate or three-year diploma course will be eligible to apply.

The online application process is open and will close on June 7. Shortlisted applicants will be informed by June 11 and they will have to submit their fee. The last date to submit the fee is June 18. Candidates can pay the fee in two installments. By June 18 a fee of Rs 30,000 and GST will be applicable and the same amount would be paid by August 20.

As part of the course, students will study several topics including portfolio approach to project management, financial and risk analysis of projects, data analytics in the project, behavioral and leadership aspects of project management among others. A total of 24 modules will be covered in the course.

The IIT says that the course is for fresh graduates and early professionals who are working or aspire to work in project management roles, managers professionals across the industry, consultants, entrepreneurs, and investors. “IIT Delhi’s Certificate Programme in project management will help you understand project management concepts and principles and deliver projects with a precise focus on time, budget, and quality. It will introduce you to the tools and techniques used for comprehensive project management – from its initiation to closing. Enrolling in this programme will equip you with robust planning abilities, the capacity to set clear goals and realistic objectives and achieve them with a single-minded determination”

Participants who score at least 50 per cent in the evaluation components and maintain a minimum of 60 per cent attendance in both lectures and tutorials will be awarded a completion certificate. Participants who are unable to score 50 per cent in the evaluation components will be eligible for a participation certificate if their attendance is above 60 per cent in both lectures and tutorials.

**IIT Delhi to Organise Online Programme on Career Prospects for Students**

April 9, 2021  https://www.ndtv.com/education/iit-delhi-organise-online-programme-on-career-prospects-for-students

Indian Institute of Technology (IIT) Delhi will hold a Company-Campus engagement programme—“Yukti-Building Relations” on April 10 and 11, 2021.
Indian Institute of Technology (IIT) Delhi will hold a company-campus engagement programme--“Yukti-Building Relations” on April 10 and 11, 2021. The two-day online programme includes a job and internship fair, summits, guest panels, workshops, competitions, and virtual industrial visits. Except for the job and internship fair, all other activities are open to non-IIT Delhi students also.

The theme for this year is “Careers in the Age of COVID-19”.

Organized by the Office of Careers Services (OCS), the programme aims to not only allow students to comprehend and compare different recruiters across sectors but also help them understand and build their own capabilities via competitions and workshops, reads a statement from the IIT Delhi.

Speaking about this initiative, Dr Anishya Obhrai Madan, Head, OCS said: “At OCS, IIT Delhi we try to conceive programmes and processes to cater to the career needs of the student community, which would, in turn, meet the talent needs of the corporate world. Yukti is our annual company engagement program in this direction.”

“This year we have expanded the scope of Yukti to include non-recruiting events and workshops as well. We hope this helps the students make more informed career decisions,” she added.

**IIT-D researchers develop device to diagnose dengue within an hour**


It has been successfully tested on clinical blood samples

Researchers at the Indian Institute of Technology here have developed a handheld Surface Enhanced Raman Spectroscopy (SERS)-based platform for early diagnosis of dengue and also gives dengue test results within one hour (rapid diagnosis).

**HIV detection**

The institute said that the handheld device has been successfully tested on the clinical blood samples collected from hundreds of individuals in collaboration with ICMR-National Institute of Malaria Research (NIMR), New Delhi, and also helps in rapid detection of HIV.

**Conventional tools**

“Early diagnosis of dengue is the key to prevent deterioration of a patient’s health. However, conventional diagnostic tools like nucleic acid detection using Reverse Transcriptase Polymerase Chain Reaction (RT-PCR) is a time-taking process and it also requires expensive equipment and reagents for the diagnosis of dengue,” the institute said outlining the need for the device.

Speaking of the handheld device, the project’s principal investigator, J.P. Singh, professor at IIT-Delhi said, “This ultrasensitive and handy device has wide range of applications in the early stage onsite detection of viral diseases and can produce the final report of investigation within an hour.”

The research work was funded by IMPRINT India programme of the Ministry of Education with New Age Instruments and Materials Pvt Ltd as the industry partner.
IIT Delhi launches interdisciplinary MTech in cybersecurity

IIT Delhi’s new MTech is open to those who qualify the GATE and will allow both full-time and part-time students.

Indian Institute of Technology (IIT) Delhi is launching a new interdisciplinary postgraduate program, MTech in cybersecurity. Ramgopal Rao, director, IIT Delhi made the announcement through a social media post on Tuesday.

Flexible in nature, the MTech programme will allow applicants to register as full-time or part-time candidates. Those sponsored by any industry or the government can also register themselves.

The programme, MTech in Cybersecurity will be offered by the institute’s Centre of Excellence for Cyber Systems and Information Assurance (CoE-CSIA) and the School of IT.

The call for the online application for the program being offered for the academic year 2021-2022 will commence from March 15, 2021. The last date for submission for the online application is April 24, 2021.

GATE required for MTech

Candidates interested in the MTech programme should be General Aptitude Test in Engineering (GATE) qualified.

Applicants should have cleared GATE and should have an excellent background in computer science, electronics engineering or electronics and communication.
The full-time candidates should reside in the IIT campus for the entire duration of the programme. The student should have an excellent valid GATE score in computer science or information technology.

Candidates who opt for part-time should be working in an industry or organisation involved in computer science research or teaching. The candidate should be located within 50 km of NCR.

Also, the organization should certify that it has ‘no objection’ to the candidate pursuing the degree.

The course content has three major disciplines, system security and cyber forensics, cryptography and cryptanalysis and embedded system and hardware security

IIT Delhi Halves Carbon Footprint with 4.7 MW Green Energy Capacity

IIT-Delhi has achieved the milestone of becoming the 1st Central Govt funded technical institute to reduce its carbon footprint by over 50%

Indian Institute of Technology – Delhi (IIT-D) has announced that from April 1, 2021, the institute achieved the milestone of becoming the first Central Government funded technical institute to reduce its carbon footprint by more than 50 percent. This, the premier institute claims, was made possible by its recent bilateral power purchase agreement with a hydropower generator in the state of Himachal Pradesh for sourcing 2 MW green energy for its power demands.

Prof V. Ramgopal Rao, Director, IIT Delhi said, “availing green power through open access is another important initiative that we have taken in recent times to share our responsibility towards clean climate. IIT Delhi has always shown a pathway and provided leadership for new initiatives like these. Through many such proactive actions, we are making good progress in achieving the target of
making our campus — smart, sustainable and green. The Institute has plans to expand the green power purchase portfolio in the near future.”

The firm stated that open access provisions in Electricity Act 2003 have made it possible to buy power from the generators of their choice through bilateral contracts or energy exchange, for large consumers of power like IIT Delhi. The institute made use of these provisions to its advantage by involving PTC India as a trader to identify a source of ‘green’ power. Buying 2 MW of power exclusively from ‘green’ generator is equivalent to off-setting about 14,000 tonnes of CO2 emissions annually.

The institute already has 2.7 MWp of rooftop solar PV installation on campus. And with the addition of 2 MW of hydropower in the kitty, IIT Delhi’s power purchase portfolio has 4.7 MW of green power as against contract demand of around 8.5 MW with the local utility that essentially serves academic and hostel areas.

“With this, IIT Delhi shares its responsibility in achieving the Nationally Determined Contribution (NDC) target as part of climate change pledge by the Government of India during the Paris agreement,” the institute stated.

Dr. Abhijit Abhyankar, Associate Dean (Infrastructure) and Professor, Electrical Engineering, IIT Delhi said, “It is expected that IIT Delhi would do substantial cost saving with green power procurement. The Institute also wishes to expand this initiative by exploring further cost-saving opportunities provided by the energy exchanges in India.”

Availing open access to purchase green power entailed adopting a procedure laid down by state and central electricity regulatory commissions for obtaining approvals from local utility, various load dispatch centres, installing open access meters, etc.

Dr. Abhyankar added, “IIT Delhi has created a template for educational institutes who wish to avail this facility.”

**IIT Delhi works on making EVs part of life**


From retrofitting cars into electric vehicles (EV) to researching on batteries and setting up charging stations on the campus, IIT Delhi is putting its best foot forward in promoting the technology. The institute’s Centre for Automotive Research and Tribology (CART) has also been researching driverless cars for major automobile companies to “make India become totally electric”.

IIT Delhi director V Ramgopal Rao said, “Electric will be the future. India has always skipped generations when it comes to technology. A transformation will come from the automobile industry. Apart from the high price of EVs, unavailability of charging stations is also an issue. These will be solved when NHAI and other agencies set up charging stations along highways. The cost of such cars will go down with the increase in volume. People will eventually see the price advantage of an electric vehicle.”
Rao added, “IIT Delhi has taken an active role in academics and research in this regard. We have signed MoUs with many automobile companies and are in the process of connecting with more. At the same time, we are recruiting faculty members. The goal is to research how to reduce charging time. Once that happens, we will research automated vehicles.”

BK Panigrahi, the head of CART, said the Centre had a mandate towards promoting research and academic activities related to EVs. “We will be starting an MTech course on electric transportation in July along with a few certificate courses. Our researchers are working on chargers and new battery packs that can substitute the ones present in e-vehicles currently. We are collaborating with auto companies for developing battery technology and research on automated cars,” he added.

Recently, IIT set up a 20kW charging station with inbuilt solar photovoltaic interface capability developed by Smart Grid Lab of department of electrical engineering funded by the Centre’s department of science and technology. Incubated start-ups like “Geliose Mobility” to launch “Hope”, a cost-effective electric scooter with a running cost of around 20 paisa per km, are also being promoted.

Hemant Kaushal, project coordinator at IIT Delhi’s Centre of Excellence for Research on Clean Air, said, “We are designing kits for retrofitting cars, but the future plan is to develop driverless vehicles.”
We are working on reverse logistics of electric batteries. India doesn’t have the infrastructure to dispose of these batteries, which can prove to be a huge challenge. Our researchers are creating models for disposal of batteries. At the same time, we are looking at a battery-swapping technology so that people need not stand in queues to charge their cars.”

**New research can help predict evasive capabilities of new Covid variants**


A senior citizen gets a dose of Covid-19 Vaccine at a dispensary, in Ghaziabad on Saturday.

Groups of eminent scientists and researchers from various parts of the world have jointly conducted research on a project on the theme, “Structure-Function Analyses of New SARS-CoV-2 Variants B.1.1.7, B.1.351 and B.11.1.28.1: Clinical, Diagnostic, Therapeutic and Public Health Implications” which has been published in MDPI Viruses journal.

This project was jointly headed by Prof Seyed E. Hasnain, IIT Delhi; Prof. Subhash Hira, University of Washington, Seattle, USA; Prof D. Sundar IIT Delhi; and Dr Syed Asad Rahman. BioInception, Cambridge.

On the structure-function relationship of these mutations, Prof Seyed E. Hasnain, IIT Delhi who was earlier Vice Chancellor of Jamia Hamdard, says, “In our research, we have assessed the structure-function relationship of these mutations. Interestingly, some of the mutations in the new variants can increase transmissibility and cause antibody resistance indicating that it can lead to reinfection as seen from the second wave of South African/Brazilian population and may also bypass the immune recognition by the vaccine induced antibodies. This is particularly concerning when vaccination drives are at full throttle around the globe. Even countries like Brazil which are way behind any meaningful vaccination drive at the national level, are facing infection by double mutants.
which, as per the New York Times, is witnessing the worst possible infection burden in the world taking 125 human lives every hour.”

On how this research is going to be useful, Hasnain says, “As we move from here, our research can be useful in predicting transmission and immune evasive capabilities of new variants. Outcomes from such predictions can be useful in devising early measures to prevent the epidemics spiraling out of control. For scientific policymakers, it highlights the need for periodic mass sequencing of Covid-19 samples to assess prevalence of these specific variants or new variants which may arise in future. For the general public, our work further cautions that one time vaccinations may not be sufficient for long-term protection against Covid-19 and that people might get re-infected with a newer variant in future. This also highlights the need for adopting a strategy of yearly vaccination as has become the convention for flu vaccination.”

“The emergence of new 501Y.V1, 501Y.V2 and P.1 variants marks the beginning of antigenic drift for SARS-CoV-2 owing to cluster of mutations acquired in the S protein [55]. The rise of such variants is particularly concerning as these might escape antibody therapies and vaccine induced protection, during a period when massive vaccination drives are already in progress globally,” the conclusion drawn by the researchers says.

“The N501Y mutation in all three variants may enhance ACE2 affinity, but might not confer antibody resistance individually or neutralizing effects by convalescent plasma and vaccine sera. In accordance with recently published reports, our findings also indicate reinfection potential of 501Y.V2 and P.1 variants in the South African and Brazilian population, respectively,” the paper concludes. Researchers have further concluded, “In a nutshell, the cluster of mutations in the S protein can have significant impact on viral transmission, infectivity, diagnostics and host immune responses. The N501Y mutation, in particular, leads to stronger interaction with human ACE2 compared to its wildtype, although other co-occurring mutations along with N501Y might have a different overall effect. In addition, the combined impact of all the mutations in the variants warrants further studies to provide insights into the infectivity and pathogenesis associated with the variants.”

The names and affiliations of scientists and researchers involved are: Jasdeep Singh, PhD, Jasmine Samal, PhD, Vipul Kumar, BTech, Jyoti Sharma, PhD, Usha Agarwal, MD, Nasreen Z. Ehtesham, PhD, D. Sundar, PhD, Syed Asad Rahman, PhD, Subhash Hira, MD, MPH, Seyed E. Hasnain, PhD.

Affiliations: JH-Institute of Molecular Medicine, Jamia Hamdard, New Delhi, India; ICMR National Institute of Pathology, Safdarjung Hospital Campus, New Delhi, India; Department of Biochemical Engineering and Biotechnology, Indian Institute of Technology, New Delhi, India; BioInception Pvt. Ltd, Swift House Ground Floor, 18 Hoffmanns Way, Chelmsford, Essex CM1 1GU, United Kingdom; Department of Global Health, University of Washington-Seattle, USA Dr Reddy’s Institute of Life Sciences, University of Hyderabad Campus, Prof C.R. Rao Road, Gachibowli, Hyderabad, India.

**IIT Delhi Chips in to Manage Solid Waste in Lahaul-Spiti**


IIT Delhi has signed an MoU with the Lahaul-Spiti administration to segregate, collect, manage and ensure safe disposal of solid waste generated in the district.
Indian Institute of Technology (IIT) Delhi has chipped in to provide innovative solutions for solid waste management at Lahaul-Spiti.

It’s the first-of-its-kind initiative at any high-altitude tribal district, which remains under the snow for five to six months.

But now, Lahaul-Spiti is becoming one of India’s most favoured tourist destinations after the opening of the Atal Rohtang Tunnel — the world’s longest tunnel at a height of 10,000 feet in Himachal Pradesh on the Manali-Leh national highway.

IIT Delhi has signed an MoU with the Lahaul-Spiti administration to prepare and execute all plans with active community participation, for segregation, collection, management, and safe disposal of solid waste generated in the district.

Deputy commissioner Pankaj Rai, the brain behind the project, said the solid waste management drive will be part of the school curriculum.

“The children from primary standard to an elementary level not only will themselves learn new technological solutions to domestic garbage management but become powerful messengers for a larger transformation of the tribal society as role models for checking environmental pollution in the future,” Rai told Outlook.

“After the schools open (currently closed due to Covid spike in the state), the children will devote one day a week to clean up school premises and the surroundings along with the teaching staff. There will be a 35-minute class devoted only to the topic of sanitation and solid waste management as part of the curriculum,” he said.

A booklet (activity guide) on the subject, duly approved by the state’s education department and other regulatory bodies, has already been released by the deputy commissioner.

There will also be audio-visual support to the curriculum on solid waste management at the secondary level.

The teams from the IIT will conduct workshops and impart training on solid waste management, its benefits and use of dustbins and problems, which solid waste has created in the country’s towns with special case studies on success stories to the local communities, panchayats, mahila mandals, Lahaul Environmental Society, NGOs, and children. They have already done a trial run.

What is worrying the district administration is the recent accumulation of garbage in the environmentally fragile district after the opening of the Atal Rohtang Tunnel. The tourist influx immediately after the opening of the tunnel had created havoc leaving plastic bottles, chips packets, wrappers and also liquor bottles dumped along the mountains and even in the Chandra-Bhaga – twin glacier-fed rivers – which is the Chenab while entering Jammu & Kashmir.

The local community was prompt to respond to this kind of irresponsible tourist activity and asked for immediate curbs on open dumping of waste.

“But the best thing about Lahaul-Spiti, especially the Keylong and other valleys is that people have a readymade system of segregation at home. The entire wet waste has been going to the fields/crops...
and solid waste was kept separate. There was no inbuilt mechanism for its safe disposal, which people will have now,” Rai said.

Nearly 6 to 10 tonnes of waste are generated every day in the district of which 60 per cent have been going to the fields.

Before the opening of the Rohtang Tunnel, most of the population of the district used to shift to Kullu and other places to avoid harsh winters as they stayed cut off for six months due to the closure of Rohtang Pass (13,059 feet).

Now, in the changed conditions, the people are likely to stay back in the valleys. Then, the tourist influx will also add to the load of the waste.

Before the upcoming summer tourist season, the district administration wants to create a dependable mechanism for garbage management, check littering and ensure cleanliness.

In the first phase, 50 toilets will be built at Sissu, Udaipur, Triloknath, Tandi confluence, Deepak Tal and Chandratal for the convenience of the tourists.