



# Prajwalam

Indian Institute of Technology Ropar

THE NEWSLETTER

VOL 9, ISSUE 1 | JUNE 2020



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**COVID-19 SPECIAL**

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## DIRECTOR'S MESSAGE

We all know that our nation as well as the whole world is going through a very turbulent period, following the Covid-19 attack. Commenting on the pandemic will be redundant, in view of the flood of information both accurate and fake, flooding all types of media including the social media. However, one thing can be told with certainty that focus has come back on scientific methods and scientific research. During this period, even in the public domain, the various innovative techniques for testing, management, predictions, characterization and mitigation strategies including race for vaccine are not just topics of discussions within the scientific community but among the public at large.

IIT Ropar has taken the double prong strategy of protecting the health and academic interests of its community on the one hand and contributing to the national and local needs through innovation, research and collaboration. This issue of *Prajwalam* presents some of the innovations that the faculty and students of IIT Ropar have come up with, while a lot many are being worked upon. It is also heartening to observe that many of these innovations are being commercialized or being transferred directly to healthcare authorities making IIT Ropar's mission of "Contributing to Society" and "Contributing to Nation" a reality.

During this difficult period, IIT Ropar has not led down its academic activities as we quickly switched to online mode in the middle of the semester which was brought to an end on 13th June. Curricular activities continued not only through online classes but also through online assignments, examinations, viva voce etc. We strictly followed the principle of giving alternate opportunities to the students without diluting the standard of education. Online classes will be offered in the coming semester and the Institute is gearing up its technical and other abilities to carry it out effectively. Institute is also to bring back the research scholars in a phased manner following all government norms, keeping health and safety at the centre, and on a completely voluntary basis.

The construction activity within the campus is going in full swing with the campus adhering to the government led procedure. We are also happy to observe that a large number of newly recruited faculty and staff members have joined the Institution during this period which also talks about the reputation that the Institute has built over the years.

Last but not the least, IIT Ropar has attained high international rankings in the Times Higher Education Asia University Rankings and Times Young University Rankings 2020. This shows the commitment of our stakeholders, particularly the students, faculty and staff towards excellence and I am sure, our endeavour to make it a leader among the universities born in the new millennium within a short period of time to come. We pray that all of you remain safe and fight this difficult time unitedly for the growth of the nation and the welfare of humanity.

Jai Hind!



**Doffing Unit:** IIT Ropar conceptualised Doffing Unit (Station) for health care workers using chemical disinfectants, UVGI technology and negative pressure room technology.



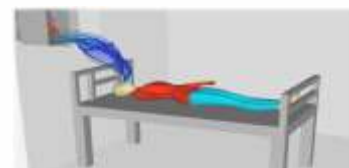
**UV-C Sterilization Trunk:**

- IIT Ropar designed and fabricated a sanitizing device based on UV-C germicidal irradiation technology to sterilize groceries, vegetables, packages and personal belongings.
- This trunk shaped device is easy to fabricate, convenient to operate and chemical- free procedure for sanitization.



**Negative Pressure Room (NPR) :**

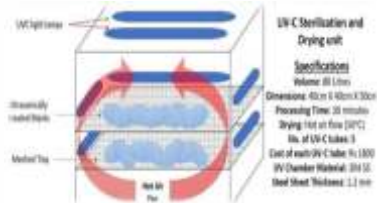
IIT Ropar has developed a design for a negative pressure room (NPR) to prevent the transmission of COVID-19 through air at isolation wards and testing labs, thus protecting the medical staff from getting infected.





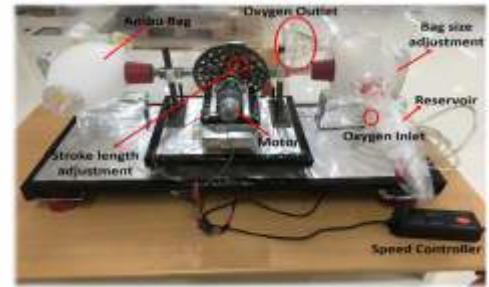
### 3-way PPE Sterilization:

IIT Ropar has designed a device to sterilize and cleanse 'Used PPE' by three proven pathogen-killers namely Ultraviolet-C irradiation, Ultra-sonication and an oxidizing agent. These techniques are known to disrupt the capsid of viruses and render them inactive. By employing three sterilizers in combination, respirators and PPE can be completely disinfected.



### Low Cost Ventilator :

IIT Ropar team designed & fabricated a low cost ventilator.



### Line Robot :

IIT Ropar team designed a "wardbot" to deliver medicines/food in Covid19 patients ward to minimize medical staff intervention.



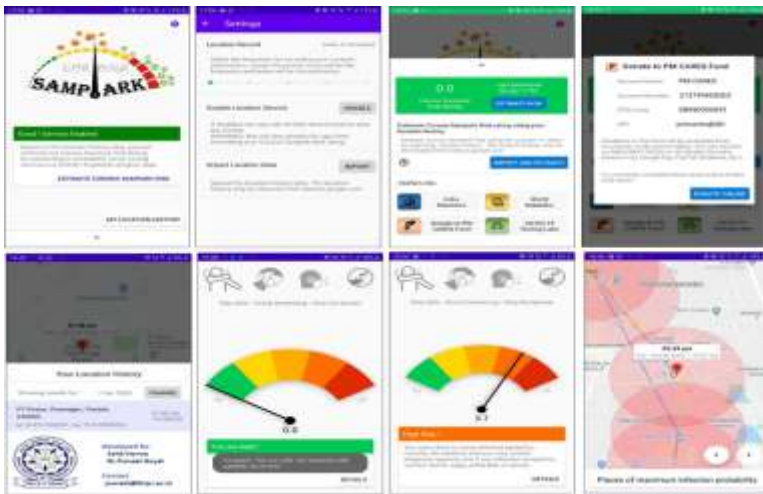
### Containment Box:

Containment Box is designed for protecting frontline healthcare workers that can allow it to be converted into a negative pressure chamber by connecting the vacuum from the wall-gas supplies, readily available in most hospitals.



### Sampark-o-Meter:

A mobile-based app called "Sampark-o-Meter" is developed which can indicate areas on maps with maximum coronavirus infection possibility.



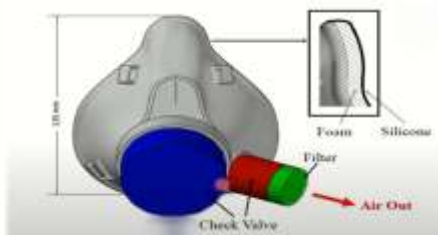
### Intelligent Infrared Vision System for Covid-19 suspects' identification:

Intelligent Infrared Vision System has been developed which is portable, economical, and safe with remote screening capabilities along with self decision making ability to detect suspects without human intervention at crowded places.



### Affordable, Compact and infection-free BiPAP MASK for SARS patients:

BiPAP (Bilevel Positive Airway Pressure) ventilation support is developed for the less critical COVID-19 cases and as a backup while traditional ventilators are occupied for the critical cases.



### MEDI- Sarathi and AI Powered Trolley :

IIT Ropar in association with PGIMER, Chandigarh have developed and launched two state-of-the art low cost autonomous vehicles, "Medi-Sarathi" and "AI-Powered Trolley" for COVID-19 patients with an intent to minimize healthcare workers' contact with infected patients and contaminated surroundings.





# HRD MINISTER LAUDS IIT ROPAR'S EFFORTS

**MHRD | Government of India**  
**Ministry of Human Resource Development**

universities are contributing to the public good. As one of the largest education systems in the world with more than 340 million students and 10 million teachers, we have a huge responsibility to ensure the smooth and safe running of our institutions. The best part is that the entire education sector in the country is working closely together on COVID-19 response efforts. As a part of a joint project, the Chemistry Department, along with the Bioscience and Bioengineering departments at IIT Gandhinagar, are developing prototypes of waterproof protective gear that comes with an antiviral coating. Besides, experts have created a 3D-printed prototype of a full-face shield, including headgear, with a possibility of scaled-up manufacturing.

To meet the enormous demand for sanitisers in the country, IIT Kharagpur has developed two different alcohol-based hand sanitisers based on WHO guidelines. Numerous other universities and institutions are preparing sanitisers to meet the huge demand. While researchers at the Indian Institute of Technology, Kanpur, have come up with a new ventilator design. This has the potential for large-scale manufacturing at multiple sites. Scientists at the Indian Institute of Technology, Delhi, have developed a method to detect COVID-19, which can significantly reduce the cost of the test making it affordable for a larger section of people. Situated near Chandigarh, IIT Ropar has developed a design of a Negative Pressure Room (NPR) to prevent the transmission of COVID-19 through the air at isolation wards and testing labs. This technology will help protect our most vulnerable medical staff from infection. As a part of a collaborative initiative,

students from prestigious educational institutions — IITs, NITs, and IIMs — have come together and launched an initiative called Sahyog to help stranded workers, migrants and the homeless amid the strict measures to restrict movement. As a part of another collaborative project, AIIMS Patna and IIT Patna are identifying potential drug targets in the structural proteins of SARS-CoV-2.

Our educational and research institutions do realise the fact that the COVID-19 crisis has resulted in an unprecedented lockdown, and the country badly needs an abundant supply of essential commodities. We need COVID-19 testing kits, masks, alcohol-based sanitisers, personal protective equipment (PPEs), dress materials not only for the patients but also for frontline health workers. The challenge is to produce these as quickly as possible and in bulk. This situation prompted the Government of India to vigorously activate the Make in India Programme and involved various Research and Development institutions of the country. Indian Institute of Science in Bangalore is working on several projects ranging from 3D printed valves for split use of ventilators to a recombinant antibody vaccine for SARS-CoV-2.

Researchers at the institute are also working on developing a UV-based disinfectant device along with mobile diagnostic testing laboratory. IIT Patna is attempting to make ingeniously designed tanks and filters. The filters contain layers of non-woven PP (polypropylene) materials and textile material coated with known antiviral nanomaterial. To prevent community spread, surveillance of Coronavirus suspects is essential. It's heartening to note that IIT

India Post and 9 others

**Sanjay Dhotre** @SanjayDhotreMP · 1h

Proper removal or doffing of the #PPE by the doctors after treating patients affected by #coronavirus is utmost important to minimize the risk of #COVID19 transmission. Congratulations to @iitrpr for designing a Special Doffing Unit as per @WHO guidelines. #IndiaFightsCorona

Great work Team IIT Ropar for Designing a Doffing Station for Healthcare Workers

PMO India and 9 others

**IIT Patna and Kanakade Industries Forum sign MoU for developing Portable Emergency Medical Ventilator**

IIT Patna has signed an MoU with Kanakade Industries Forum (KIF) for jointly developing affordable portable emergency ventilator that can be used in the care of patients with COVID-19. The ventilator will provide control over respiratory rate, pressure, volume (breath) volume, respiratory time, respiratory time and ventilator modes.

**COVID-19-related research and development at IIT Delhi**

IIT Delhi faculty members and researchers of different departments have taken various initiatives to combat COVID-19 in alignment with the government's outbreak related R&D in many areas have been conducted to develop various technological products. These include production of 3-layered good quality surgical masks for health & healthcare professionals, production of high efficiency face masks (PPE), development of automated filter for prevention against hospital-acquired infection, detection assay for COVID-19, 3Dly mask, homemade breast cancer based sensor, etc.

**IIT Ropar develops design of Negative Pressure rooms to check spread of COVID-19**

IIT Ropar has sent their proposal to the Ministry of Human Resource Development (MHRD) and principal scientist advised for creating negative pressure isolation rooms as a mass scale to prevent transmission of COVID-19 in hospitals. The negative pressure room ensures that released droplets of the infected do not stay suspended and is sucked out through the ventilator. South Korea has been able to contain the COVID-19 through their isolation and drive through testing facilities which have negative pressure rooms. The testing labs and isolation rooms (which have one or more COVID patient) need to be connected into negative pressure rooms for the safety of health workers.

**Ventilator that can treat two patients, courtesy IIT Ropar scientists**

In a significant achievement in fighting the Coronavirus the IIT Ropar researchers have now come up with the low cost and portable ventilator that can be easily and quickly manufactured in per the requirements. These ventilators can provide support to two patients at a time.

**IIT-Ropar develops device to clean, reuse PPE kits**

Researchers at the Indian Institute of Technology (IIT) Ropar have come up with a technique to clean and sanitize personal protection equipment (PPE) kits including surgical masks and other protective gear, without causing any damage to them.

**IIT-Ropar scholar, private engineers group, develop an app to prevent community transmission**

IIT Ropar scholar and some engineers of Legato Innovation Pvt of different streams have developed an android application that may prove helpful in curbing the community transmission of the virus. The app can identify the suspect within a distance from 1 to 3 meters. The app also maintains a record of the persons coming contact with each other for 14 days and this will send a message to the person who had come in contact with the COVID-19 suspect.

**Tweet**

**Dr. Ramesh Pokhriyal Nishank** @DRPNishank

Congratulations to team @iitrpr led by Mr. Dhiraj K Mahajan for working out engineering aspects of Negative Pressure Rooms to create facilities for mass screening for Covid-19. It will help to contain the rapid spread of the virus.

#IndiaFightsCorona

**IIT Ropar** @iitrpr · 04/04/20

@iitrpr decodes South Korean technique for mass screening to beat COVID-19. bit.ly/39JxgmS @DhirajMahajan @narendramodi @HRDMinistry @mygovindia @PIB\_India @IndiaDST @PTI\_News @TollIndiaNews @Dr...

**Har Ek Kaam Desh Ke Naam**

**IIT ROPAR'S INNOVATION IS REVOLUTIONISING THE DETECTION OF BREAST CANCER**

**Sanjay Dhotre** @SanjayDhotreMP · 1h

A trunk that kills #Coronavirus! Fantastic product made by @iitrpr team that can be used to sanitise all items brought home from the outside like grocery, vegetables, milk, & our personal things which we take outside like wallet, wristwatch, mobile phone, etc. #StayHome

Ministry of HRD and 8 others

**Sanjay Dhotre** @SanjayDhotreMP · 1h

This device is based on ultraviolet (UV) germicidal irradiation technology used in water purifiers. Researchers strongly advise not to look directly at the light as it can be harmful.

Here's a video to understand the device better - youtu.be/Li0t\_D3H #CoronavirusPandemic

**Dr. Ramesh Pokhriyal Nishank** @DRPNishank

Thermal Wave Imaging Equipment! Invented by IIT Ropar, it is going to be used for early, safe and remote detection and evaluation of breast cancer. The machine is scheduled to be introduced into the medical world by the end of March 2020. (Medical Jet)

**Sanjay Dhotre** @SanjayDhotreMP · 1h

Congratulations to IIT Ropar and its team for developing this low cost autonomous vehicle, Multi-Spectral solar system & IoT-based facility, that can enhance the role of infection for healthcare workers taking care of COVID-19 patients. #IndiansFightsCorona



## RANKINGS

- IIT Ropar once again made a mark in **THE Emerging Economies University Rankings 2020**, being ranked 63<sup>rd</sup> sharing the rank with IIT Madras and entering the top 100 list for the first time.
- IIT Ropar made a debut this year in **THE ASIA University Rankings 2020**, being ranked 47<sup>th</sup> and entering the top 50 list for the first time. In spite of being a young Institution, IIT Ropar has punched well above its weight from the more popular predecessors.
- IIT Ropar emerges as the TOP Indian Institute in **Times Young University Rankings 2020**. IIT Ropar charges ahead and catapults to the Top 70 in the Times Higher Education Young University Rankings 2020 announced at UK. The Institute has been ranked 62<sup>nd</sup> in the World reaching under Top70 best Young Institutes in the world.
- IIT Ropar has been ranked 39<sup>th</sup> in the overall category and climbed to rank 25<sup>th</sup> in the **Engineering Category** in the latest India Rankings 2020 by the **National Institutional Ranking Framework (NIRF)**.

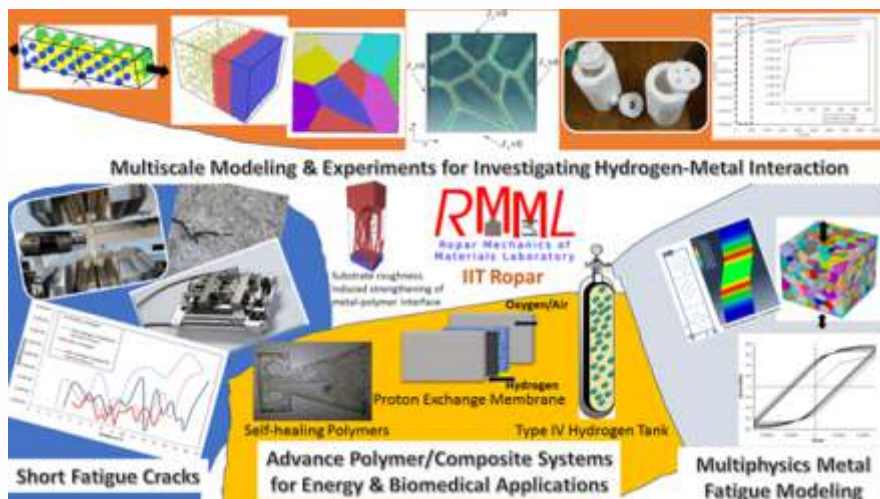


## KNOW YOUR FACULTY



**Dr. Dhiraj K. Mahajan** is an Associate Professor in the Department of Mechanical Engineering, Indian Institute of Technology Ropar, Punjab India. Dr. Mahajan joined the institute as an Assistant Professor in Dec. 2013. He did his M.Tech. in Advanced Manufacturing Processes from National Institute of Technology Warangal. In 2010, he earned his PhD in Solid Mechanics from IIT Kanpur for his doctoral research on the molecular dynamics-based investigations into the deformation behavior of amorphous polymers. During his PhD, he was a visiting researcher at INSA-Lyon, France for a few months. After his PhD, he worked as a postdoctoral fellow in the Interdisciplinary Centre for Advanced Materials Simulation (ICAMS) at Ruhr University Bochum, Germany till December 2013. At ICAMS, he pursued research on multiscale modeling of metal plasticity, failure of amorphous polymers, metal substrate roughness effect on performance of polymer coatings and hydrogen-based failure of steels in strong

collaboration with industry. At IIT Ropar, Dr. Mahajan has established the Ropar Mechanics of Materials Laboratory (RMML) which focuses on correlating microstructure, deformation/fracture mechanisms and manufacturing of materials ranging from advanced high strength steels to bioresorbable polymers using ultramodern experimental and multiscale simulation techniques. The present research interests of the group are broadly focused on indigenisation of hydrogen energy technology (that include development of high pressure hydrogen storage Type IV tanks and additively manufactured proton exchange membrane fuel cells) towards zero-emission future for the country, multiscale modeling of short crack propagation in metals, multiphysics modeling of hydrogen embrittlement phenomenon in metals and micro-injection molding of bioresorbable polymeric stents. Research papers from Dr. Mahajan's group are regularly published in journals of international repute. A recent work from his group on hydrogen distribution in metallic materials with deformation is published in the reputed Journal of Mechanics & Physics of Solids. Dr. Mahajan, while working on advance research topics, is equally motivated to support Indian industry to manufacture world class products within the country. With this motivation, he is currently handling several projects in collaboration with industry. Further information about Dr. Mahajan's work can be found at <http://www.iitrpr.ac.in/smmee/dhiraj>.







## ADVITIYA 2020

Advitiya 2020, IIT Ropar's tech-fest concluded with a bang with a guest lecture by Dr. K Radhakrishnan, the Former Chairman of ISRO. He comprehensively spoke about the success story of ISRO and all the advancements from the recent space missions, mainly about Chandrayaan and Mangalyaan. Dr. K. Radhakrishnan's presentation about ISRO was quite enlightening about the challenges faced by the scientists back at ISRO. The audience threw several questions related to the ongoing research and the entire lecture has been successful in sparking off an interest for the young impressionable minds to consider a career at ISRO.



## 2 MONTH COURSE ON SOLID WASTE MANAGEMENT



IIT Ropar successfully organized a short duration course of two months under Green Skill Development Programme (GSDP) for Solid Waste Management in close association with Punjab State Council of Science & Technology which was sponsored by the Ministry of Environment, Forest & Climate Change, Govt. This course has been launched to enhance the skilled workforce/manpower in the areas related to the environment conservation/ preservation especially at field level and restoring environmental quality for a sustainable future. For this course, 15 students with different backgrounds and origins have been enrolled and were actively engaged in lively discussions and Green Skill development projects.

## IIT ROPAR TO SET UP HUB FOR AGRICULTURE AND WATER TECHNOLOGIES

In a first of its kind initiative, IIT Ropar is setting up Sectoral Application Hub to bring the solutions for stubble management, water quality improvement, mapping of hazardous substances in water/soil and their treatment, deployment of IoT based Cyber-Physical System (CPS) technologies in farming fields. Being in the agrarian state, a major mandate of IIT Ropar has been to take up research aimed at addressing Water-Agriculture related issues and to support this vision. The hub is aimed to carry out translational research and work with Line Departments to develop prototypes, products, and implementations. The hub will create a platform for technologies and applications in Agriculture & Water.





## IIT ROPAR SIGNED AN MoU WITH AICTE

In yet another step towards empowering the youth beyond its campus and own students, IIT Ropar has joined hands with All India Council for Technical Education (AICTE) in the auspicious presence of Union Minister for Human Resource Development, Ramesh Pokhriyal, 'Nishank', for extending internships to 100 meritorious students from Jammu and Kashmir, studying in AICTE approved institutions across the country under Prime Minister's Special Scholarship Scheme. Under this MoU, IIT Ropar will enroll 100 meritorious students from Jammu and Kashmir, for internship at its own campus. The objective of the MoU is to provide an exposure to the youth from Jammu and Kashmir to the academic culture at National Institute of importance. IIT Ropar is passionate to implement such initiatives.



## WORKSHOP ON IP TECHNOLOGY AND COMMERCIALIZATION



The Intellectual Property Rights (IPR) cell of Indian Institute of Technology Ropar organized workshop on IP Technology & Commercialization at IIT Ropar on 12th February 2020. The workshop was majorly sponsored by the Cell for IPR Promotion and Management (CIPAM), Department for Promotion of Industry and Internal Trade (DPIIT), Govt. of India and supported by Punjab State Council for Science & Technology (PSCST) under Mission Innovate Punjab.

## CDCRC ORGANIZED AN EVENT UNDER THE IIT ROPAR SOCIETY OF WOMEN ENGINEERS (SWE):

Career Development and Corporate Relations Centre organized a Career Event under the IIT Ropar Society of Women Engineers (SWE) chapter. The following companies participated: IBM, Bechtel, Synopsys, Becton Dickinson, Infosys, Emerson, Windshuttle. Ms. Vijayanthi Srinivasaraghavan, Project Executive, IBM Cloud Advisory Management Services was the keynote speaker of the event.





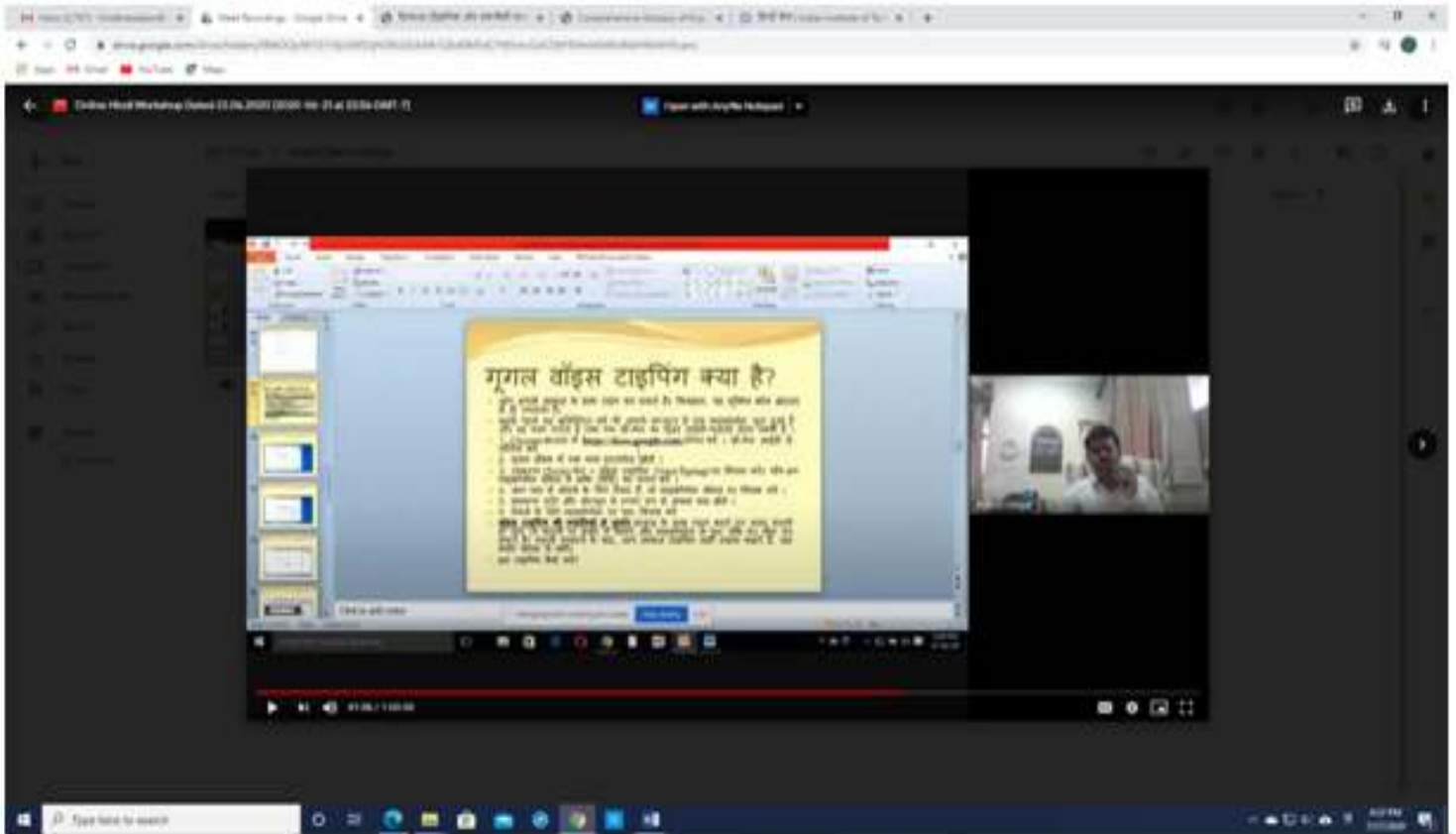
## भा.प्रौ.सं. रोपड़ में ऑनलाइन हिंदी कार्यशाला सह प्रशिक्षण कार्यक्रम का आयोजन

भा.प्रौ.सं. रोपड़ में दिनांक 22 जून 2020 को सुबह 11.00 बजे ऑनलाइन हिंदी कार्यशाला का आयोजन किया। इस कार्यशाला का विषय “कंप्यूटर में हिंदी का प्रयोग” (हिंदी टंकण के विशेष संदर्भ में) था। इस कार्यशाला हेतु वडा के रूप में श्री अरविंद कुमार, सहायक निदेशक, हिंदी शिक्षण योजना, राजभाषा विभाग, गृह मंत्रालय, चण्डीगढ़ वडा के रूप में उपस्थित थे।

इस ऑनलाइन कार्यशाला हेतु संस्थान के सदस्यों से उत्साहजनक प्रतिक्रिया प्राप्त हुई। इस कार्यशाला में सहभागिता लेने हेतु कुल 96 प्रतिभागियों ने पंजीकरण करवाया।

श्री अरविंद कुमार, सहायक निदेशक ने सभी सहभागियों को कंप्यूटर पर हिंदी में कार्य करते समय आनेवाली कठिनाईयों को चिन्हित किया और उसका क्रमबद्ध रूप से निवारण/समाधान भी दिया। श्री अरविंद कुमार, सहायक निदेशक ने हिंदी टाइपिंग के संदर्भ में हिंदी इन्स्क्रिप्ट कीबोर्ड, फोनेटिक कीबोर्ड को कैसे कंप्यूटर में स्थापित (इन्स्टॉल) किया जाता है, इसकी जानकारी दी। साथ ही, संयुद्धाक्षर को कैसे टाइप किया जाए इसका भी प्रशिक्षण दिया। भा.प्रौ.सं.रोपड़ का हिंदी प्रकोष्ठ समय-समय पर अपने संस्थान में इस प्रकार का प्रशिक्षण आयोजित करता आ रहा है। किंतु संस्थान में कई नवनिर्गुह कर्मचारियों की दृष्टि से यह कार्यशाला उपयोगी सिद्ध हुई। इसके अतिरिक्त, श्री अरविंद कुमार, सहायक निदेशक ने संस्थान के अधिकारियों तथा उच्च अधिकारियों को केन्द्र में रखते हुए Voice Typing कैसे की जाती है इसपर भी उन्हें प्रशिक्षित किया। इस कार्यशाला में डॉ. अरविंद कुमार गुप्ता, संकाय प्रभारी (हिंदी) विशेष रूप से उपस्थित थे। इस कार्यशाला में सहभागी हुए सभी प्रतिभागियों को प्रमाणपत्र प्रदान किए जाएंगे।

ऑनलाइन कार्यशाला को समापन की ओर ले जाते हुए श्री लगवीश कुमार, हिंदी अधिकारी, भा.प्रौ.सं.रोपड़ ने श्री अरविंद कुमार सहायक निदेशक का धान्यवाद ज्ञापित किया साथ ही सभी प्रतिभागियों का इस कार्यशाला सह प्रशिक्षण कार्यक्रम में सहभागिता लेने हेतु धान्यवाद ज्ञापित किया।





# IIT ROPAR IN NEWS

hindustanTimes

## IIT Ropar to provide online classes for students belonging to 4 courses

**Recorded lectures will be available in digital classroom and accessible to students belonging to 4 courses**

**Recorded lectures** will be available in digital classroom and accessible to students belonging to 4 courses. The institute has decided to provide online classes for students belonging to four courses: B.Tech. in Mechanical Engineering, B.Tech. in Chemical Engineering, B.Tech. in Civil Engineering, and B.Tech. in Electrical Engineering. The recorded lectures will be available in digital classroom and accessible to students belonging to 4 courses.

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## IIT Ropar studying depression among women

Times News Network

**Chandigarh:** The Indian Institute of Technology (IIT) Ropar, has started a project for assessing the level of depression and anxiety among middle-aged women in Punjab.

The project aims at finding the risk factors causing depression besides promoting mental health at

times news network  
village level. Under the project, around 30 urban and rural areas across the state will be covered.

**MAPPING STATE OF MENTAL HEALTH**

The IIT team has already visited four villages in the past fortnight. During these visits, around 150 women

were assessed for various mental health parameters. Assistant professor and project head Parvinder Singh from the institute's humanities and social sciences department said, "Depression is a painful emotional experience that involves intense suffering. Affective disorders are nearly twice more common among women than men.

After diagnosing the mental health issues in women, we will provide psychological counselling to strengthen their cognitive, behavioural and emotional aspects, thereby enhancing their mental health." The expert group involved in the project consists of trained psychologists and counsellors, having experience in assessing and providing required psychological assistance. For all the activities, a specific module has been formulated following the guidelines suggested by the World Health Organization, counselling psychologists and cognitive behavioural therapists.

The project is being funded by the institute under its innovative research and development scheme.

## IIT Ropar designs doffing unit for docs

**The doffing chamber**



The doffing unit is a small, portable, and easy-to-use device that can be used in any setting. It is designed to help doctors and other healthcare workers safely remove their PPE without contaminating themselves or the environment. The unit consists of a chamber with a door that can be opened and closed. Inside the chamber, there are several steps that the user must follow to safely remove their PPE. The unit is designed to be used in a way that minimizes the risk of contamination and ensures that the user is safe throughout the process.

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## IIT Ropar makes anti-microbial coatings for PPE kits, hospitals, public spaces

March 2020

**Patiala:** A team of researchers at IIT Ropar has developed a new anti-microbial coating that can be used on PPE kits, hospitals, and public spaces. The coating is made from a special material that kills bacteria and viruses. It is easy to apply and can last for a long time. The researchers say that this coating could help reduce the spread of COVID-19 and other infectious diseases.



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## IIT's 'WardBot' could serve medicine to Covid patients

Times News Network

**Patiala:** A team of the Indian Institute of Technology (IIT) Ropar has developed a robot-based design, WardBot, which can support healthcare outlets and industries that need to stay in operation even during spread of a pandemic like Covid-19 by minimising human interaction.

The conceptual design involves an autonomous robot, which can be instructed to receive and deliver food and medicines and necessary equipment from one room to another from a remotely-located control room. The control room can instruct multiple bots to accomplish tasks simultaneously, say on different floors. Phase-I of the project deals

with development of one WardBot and its working to serve many patients in one room. Ekta Singla, associate professor and head, department of mechanical engineering, who heads the team, said, "All team members are currently working from home. We plan to provide robust support to frontline workers to combat well in the battle against this pandemic. We are also looking forward to industry collaborations to take this concept further."

**ROBUST SUPPORT**

She said, "Robotics Club coordinator Ish Rajesh Shelly and other members are taking part in MHRD's mega online challenge 'Samadhan'. We believe we

will be able to do a fair job." Based on the smart-line following and fitted with sensors, WardBot can work on a known path and can carry food items and medicines for delivering at different beds. Patients will get the intimation through the display on small LCD units.

Its other features include self-sanitising on the return path and it can also be used to sanitise the hospital walls. It can also work under low-light conditions and maintain social distancing and obstacle avoidance, Singla said. WardBot uses simple gesture sensors for a quarantined person to wave a bye to the bot, as an indication of receiving the material.

## IIT-Ropar researchers to develop vaccine to prevent drug addiction

The researchers are working on a vaccine that can prevent drug addiction. They say that this vaccine could help reduce the number of people who become addicted to drugs. The vaccine is made from a special material that blocks the brain's reward system, which is responsible for addiction. The researchers say that this vaccine could help reduce the number of people who become addicted to drugs.



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## IIT Ropar designs 'doffing unit' to keep PPEs under sterile conditions

**The doffing unit**

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## IIT Ropar develops coatings to combat microbes

SARJAN SAINI  
Ropar, May 24

**Patiala:** A team of researchers at IIT Ropar has developed a new anti-microbial coating that can be used on PPE kits, hospitals, and public spaces. The coating is made from a special material that kills bacteria and viruses. It is easy to apply and can last for a long time. The researchers say that this coating could help reduce the spread of COVID-19 and other infectious diseases.



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## IIT-Ropar, DMC Ludhiana develop aerosol containment box

SARJAN SAINI  
Ropar, April 27th

**Patiala:** A team of researchers at IIT Ropar and DMC Ludhiana has developed a new aerosol containment box. The box is made from a special material that traps aerosols and prevents them from spreading. It is easy to use and can be used in any setting. The researchers say that this box could help reduce the spread of COVID-19 and other infectious diseases.



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## IIT-Ropar develops Covid-19 risk assessment app to control spread

**The app**

The app is designed to help users assess their risk of contracting COVID-19. It asks users a series of questions about their symptoms, travel history, and other factors. Based on the answers, the app provides a risk assessment and suggests ways to reduce the risk. The researchers say that this app could help control the spread of COVID-19.

## IIT-R develops tech to find Covid suspects

**The tech**

The tech is designed to help identify potential COVID-19 suspects. It uses a combination of facial recognition and other data to identify people who are likely to be infected. The researchers say that this tech could help control the spread of COVID-19.

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# AWARDS & RECOGNITIONS



Dr Mukesh Kumar of the Department of Physics has been awarded with the highly competitive Fulbright-Nehru Academic and Professional Excellence Fellowship 2020-2021 by the USIEF.



Dr. Srikant S. Padhee, Assistant Professor, Department of Mechanical Engineering nominated by the Society of Indian Defence Manufacturers.



Mr. Ashwin Goyal, B.Tech student secured first position at the IP Hackathon conducted by Legasis Services in association with BSE, on the World Intellectual Property Day.



Dr. Prabhat Agnihotri, Assistant Professor, Department of ME, paper on Polymer Composites has been recognized as top downloaded article for two consecutive years 2017-2018 & 2018-2019



IIT Ropar receives grant funded by DBT-BIRAC under COVID-19 research consortium for developing a Low-cost Ventilator - AARMED,

only 16 proposals were approved out of 500 applications.



Mr. Rahul Shukla Research scholar, CBME, has been awarded the BIRAC's highly competitive Biotechnology Ignition Grant (BIG'15).



Mr. Viney Ghai, Mr. Nishant Shakya and Mr. Ajinkya Sirsat research scholars received the "Augmenting Writing Skills for Articulating

Research (AWSAR) Award from DST, India for Best Popular Science Stories.



Mr. Sidhanta Nanda, Research Scholar in Centre for Bio-Medical Engineering selected for poster presentation in Nature's Conference Next Gen Immunology 2020 at Weizmann Institute of Science, Israel



Ms. Riya Joshi, CBME, M.Tech student has been selected for prestigious Indo-US Khorana program for scholars 2020.



Mr. Viney Ghai, Ms. Tripti Midha, Mr. Malkeet Singh, Mr. Subhajyoti and Ms. Apoorva Sikka, Research scholars presented Research Poster Presentation

@GYSS2020, inspiring the next generation of scientists at Singapore.



5 Research Scholars, Mr. Vikash Tripathi, Mr. Pankaj Kumar, Mr. Malkeet Singh, Ms. Joohi Chouhan and Ms. Bhawana Rana got selected for Newton-Bhabha PhD Placement Programme 2019-20.



Two students have scored above 99.9% in the Common Admission Test #CAT 2019, Mr. Ahsaas Sharma with 99.93% and Ms. Manya Dave with 99.90% and are among top 0.1 percent in the country



Mr. Anmol Rattan, B.Tech student, has been selected for the prestigious Harvard Project for Asian and International Relations #HPAIR Conference held at MA USA from 14 to 17 Feb 2020.



# STARTUP NEWS



- First ever RFID reader solely designed for attendance management systems successfully launched and installed by the Institute Startup company ScratchNest at the Punjab Renewable Energy Systems Pvt. Ltd, which can track the movement of employees in real time.



- First woman entrepreneur of IIT Ropar, Ms. Shivanshi Verma along with her partner Mr. Sandeep Kumar started their startup company YOBOSHU Pvt. which focuses on providing Fitness services, healthcare and nutrition at one click.



- New Initiative 'Voylr' by IIT Ropar Alumnus. Voylr is an online platform for booking in-destination activities; Rafting, Camping, Paragliding, Bungee Jumping, Wildlife Safari etc. with the complete information and adventures via verified operators.



- Project Shwas by Enactus IIT Ropar chapter is helping in reducing stubble burning by enabling the farmers to earn by converting their stubble into organic manure and slurry.

# SPORTS & CULTURE



- IIT Ropar participated in Inter IIT Sports Meet held at IIT Kharagpur. The opening ceremony of 54th Inter IIT Sports Meet was held on 14th December 2019 at IIT Kharagpur and 15 December 2019 at IIT Bhubaneswar. 127 students of IIT Ropar participated in this sports meet. Amit Chippa, B.Tech student won Bronze Medal in ShotPut at Inter IITSports Meet at Kharagpur.





- Under Fit India Movement initiative by the Government of India, IIT Ropar, ODAC club and Fitness Club organized a "Family Throwball Competition."



- Pehchaan Ek Safar an NGO at IIT Ropar in collaboration with Special Olympics participants from Ambuja Manovikas Kendra, Ropar conducted a unified sports event (Athletics, Football & Bocce) for children with & without Intellectual Disabilities.



- This 71st Republic Day at IIT Ropar celebrated with great patriotic fervour. Pehchaan-Ek Safar (NGO, IIT Ropar) presented the realistically crafted Ashoka Chakra made entirely from waste metal and paper collected during Swachh Bharat Abhiyan.



- IIT Ropar celebrated Matribhasha Diwas by organising Poster Making Competition, Poem and Song recitation competition and Speech Competiton.



## INFRASTRUCTURE DEVELOPMENT

- IIT Ropar has started to erect two Wind Towers (35 meters each) with a modern technology known as “SLIP Forming” which is driving faster and safer construction of Hargovind Khorana Academic Block following relaxation of lockdown.



## NEW JOININGS - FACULTY



**Dr. Aditya Singh Rajput**  
Assistant Professor  
Civil Engg.



**Dr. Ickkshaanshu Sonkar**  
Assistant Professor  
Civil Engg.



**Dr. Balesh Kumar**  
Assistant Professor  
Mathematics



**Dr. Prince Kumar Singh**  
Assistant Professor  
DMME



**Dr. Atharva Poundrik**  
Assistant Professor  
CBME & Joint in DMME



**Dr. Rajagopal Vellingiri**  
Assistant Professor (On Contract)  
Chemical



**Dr. Kaushik Mondal**  
Assistant Professor  
Mathematics



**Dr. Sudeepta Mishra**  
Assistant Professor  
Computer Science & Engg.



**Dr. Saikat Roy**  
Assistant Professor  
Chemical Engg.



**Dr. Abhishek Sharma**  
Assistant Professor  
Electrical Engg.



**Dr. Indramani Dhada**  
Assistant Professor  
Civil Engg.



**Dr. Pardeep Duhan**  
Assistant Professor  
Electrical Engg.



**Dr. Sarang Prakash Gumfekar**  
Assistant Professor  
Chemical Engineering



**Dr. Abhishek Tiwari**  
Assistant Professor  
DMME



**Dr. Debdeep Sarkar**  
Assistant Professor  
Elect. Engg



## NEW JOININGS - STAFF



**Sh. Ravindra Kumar**  
Junior Lab Assistant  
Electrical Engineering.



**Md Anzarul Haque**  
Junior Assistant  
CBME.



**Ms. Ritika**  
Junior Superintendent  
Registrar's Office



**Sh. Vipin Kumar**  
Senior Lab Assistant  
Civil Engineering



**Sh. Pankaj Thakur**  
Senior Lab Assistant  
Mechanical Engineering



**Sh. Hemant Kumar**  
Junior Lab Assistant  
Mechanical Engineering



**Sh. Lalit Kumar**  
Junior Accounts Officer  
Accounts Section



**Sh. Puneet Sharma**  
Office Asst.  
Training & Placement Cell



**Sh. Satish Kumar**  
Junior Lab Asst.  
Physics



**Sh. Naveen Kumar**  
Junior Accounts Officer  
Accounts Section



**Sh. Karamvir Singh**  
Junior Assistant Accounts  
ICSR.



**Sh. Damninder Singh**  
Jr. Technical Superintendent  
Central Research Facility



**Sh. Sumnendra Singh**  
Jr. Superintendent  
Stores & Purchase Section



**Ms. Nabanita Chakraborty**  
Junior Superintendent  
Research Section



**Sh. Anuj Babbar**  
Junior Lab Assistant  
Mechanical Engineering



**Sh. Amit Rawat**  
Assistant Security Officer  
Security Section.



**Sh. Gagandeep Singh**  
Junior Assistant Accounts  
Accounts Section



**Ms. Nidhi Sinha**  
Junior Assistant Accounts  
Accounts Section



**Sh. Rambeer Singh**  
Junior Technical  
Superintendent  
Central Workshop



**Sh. Gourav Dutta**  
Junior Accounts Officer  
Audit Section



**Sh. Sachin Mishra**  
Junior Lab Assistant  
Chemical Engineering