GURUKUL VĀRTĀ

LAND FOR PERMANENT CAMPUS

OUR RESPONSE TO THE COVID-19 PANDEMIC

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IIT GOA ALLOTTED LAND to SET UP PERMANENT CAMPUS

by Ms Aditi Saxena, Student Editor GV, and Ms Anushka Vatsa, Student Reporter

Dr B. K. Mishra, Director, IIT Goa (2nd from left), with Dr Pramod Sawant, Hon'ble Chief Minister of Goa (3rd from left) , and other dignitaries at the event

IIT Goa has been allotted 10 lakh sq mts of land by the Govt. of Goa to set up its permanent campus at Murmune-Meluli in Guleli, Sattari. The Chief Minister of Goa, Dr Pramod Sawant, handed over the documents of the land transfer to IIT Goa's Director Dr B. K. Mishra at the Secretariat in Porvorim on **May 6, 2020**. The deal takes the Institute an inch closer to realizing its commitment to developing Goa into a hub of excellence in education and scientific research and development. Since its inception, IIT Goa has been working to bridge the gap between research, industry and the local community and to create opportunities wherein its resources and expertise could be utilized for the general good.

The institute began to function in 2016 on a temporary campus housed at the Goa Engineering College (GEC) campus located in Farmagudi. Due to the scarcity of resources, the existing infrastructure of GEC had to be repurposed for the needs of IIT Goa. A provisional hostel complex and academic block were constructed two years ago to provide the best possible hostel, laboratory and academic facilities to the students. The new hostel complex is well-equipped and the new Academic Block accommodates several classrooms along with faculty cabins and laboratories furnished with ultra-modern equipment. In spite of functioning on a temporary campus, no stone has been left unturned by the administration to offer the finest hostel and laboratory facilities. Within four years of establishment, IIT Goa has achieved many commendable feats and is steadily distinguishing itself within the national and international academic landscape. The institute is growing rapidly, both in its academic and research scope as well as its intake of students and scholars. To continue with this rate of expansion, to enable it to attract and retain talent in various areas of scientific research and development and to provide students with the best resources to maximize their potential, IIT Goa has long been working towards establishing a permanent campus in the state of Goa.

State Health Minister Shri Vishwajit P. Rane, in whose Assembly constituency the permanent campus is proposed, took to Twitter to thank the Chief Minister for sanctioning the transfer of land. Welcoming IIT's arrival in Goa, the minister said: "Coming into Goa, IIT will not only create a strategic bridge between various stakeholders, but strengthen the ecosystem of the neighbouring areas of Sattari & Usgao, synthesize the knowledge of our youth, and generate employment for our citizens. Through this project, we aim to explore greater avenues of technological education and employment opportunities for our citizens by creating an ecosystem that will help uplift Goa on the map of the country."

IIT GOA'S RESPONSE to the COVID-19 PANDEMIC

Since the pandemic struck, the global scientific community has been working round the clock to not only understand, cure and mitigate the virus but also to develop and implement effective health tools to combat the spread of COVID-19. Collaborations that cut across disciplines and borders have been crucial to the fight against the pandemic. Scientists at the Indian Institute of Technology Goa have made significant contributions to help counter the effects of the pandemic on a local as well as global scale.

An OVERVIEW of COVID-19 RESEARCH UNDERTAKEN

by Mr Aaryan Kadam, Ms Gunjan Mayekar, and Ms Svara Mehta, Student Reporters

DESIGN and DISTRIBUTION of 3D-PRINTED FACE SHIELDS

Design of the shield

To address the acute shortage of Personal Protective Equipment (PPE) for medical, police and security personnel working on the frontline of COVID-19 response in Goa, researchers at IIT Goa developed more than 200 face shields. Designed by **Dr Sachin Kore, Mr Amey Naikdessai** and **Mr Sidhesh Sudarshani** of the **School of Mechanical Sciences** on April 6, 2020, the shields were manufactured with 3D-printing technology, using low-cost transparent sheets that can be used alongside other protective gear by essential workers and healthcare personnel to add an extra layer of safety.

Over a ten-day period in April, these shields were delivered to the Subdistrict Hospitals of Ponda and Chicalim, Vasco, the Mothercare Hospital at Margao and the Indian Medical Association, Curchorem, Quepem, Sanguem (IMA-CQS). Other than providing protection from respiratory droplets the shields also decrease fatigue due to their simple and lightweight design, making them easy to wear for extended periods.

In addition to this, **Dr Arindam Das (School of Mechanical Sciences)** and **Dr Mantu Santra**

(School of Chemical and Materials Sciences) are working on the development of a low-cost antiviral coating for PPEs for an extra layer of protection for contact surfaces. **Dr Sharad Sinha (School of Mathematics and Computer Science)** is working on contactless interfaces using machine vision techniques.

Dr B. K. Mishra, Director, IIT Goa (1st from left), delivering face shields to health workers at Mothercare Hospital, Margao

Dr Sachin Kore (1st from left) and team with IMA (CSQ) personnel

IIT team delivering face shields to doctors from the SDH, Ponda and Vasco

Face shields designed and distributed by IIT Goa presently in use

Sub-District Hospitals, Ponda and Chicalim

Royal Hospital, Margao

Dr Venkatesh Molio, Consultant Physician and Cardiologist

WORKING TOWARDS a CURE for COVID-19

A research group from IIT GOA, led by **Dr Rishikesh Narayan (School of Chemical and Materials Sciences)**, is working in collaboration with researchers at the Georgia State University, Atlanta, USA to address the dire need for anti-viral therapies for those infected with COVID-19. The team aims to develop novel inhibitors of Main protease (Mpro), a protein which is essential for coronavirus replication inside human cells. Small organic molecules have historically proven to be effective anti-viral agents in the treatment of HIV and clinical studies show initial promise for the SARS-CoV-2 virus also.

The project draws from a publicly available biological database curated by the international research community over the last few weeks and is designed to progress in three phases of six months each. The conceptualization phase has already been completed with the design of Mpro inhibitors and their computational validation through docking studies which essentially acts as preliminary proof that the newly designed inhibitors are able to bind to the intended protein. In the next, so-called 'hit confirmation' phase, the chemical synthesis of the designed inhibitors will be completed. Following this, these potential anti-viral agents will be tested in the in vitro bioassay to check if they show anti-viral activity. In the final phase, the lead candidate molecules will be evaluated for their physicochemical profiles along with in vivo or functional validation to identify at least one 'lead molecule' for further development. The project is being carried out in collaboration with **Prof. Ritu Aneja** and **Prof. Mukesh Kumar** from **Georgia State University** and a researcher from **University of Washington, Spokane, USA.**

RAPID TEST to DETECT ASYMPTOMATIC PATIENTS

IIT Goa has also initiated a project to formulate a test to spot asymptomatic COVID-19 cases. Since asymptomatic patients pose an urgent problem for the containment of the pandemic, the development of a rapid test to detect such cases is of utmost importance. The current government-approved test, conducted through the extraction of RNA from nasopharyngeal swabs, has a longer diagnosis time and limited validity regarding asymptomatic or previously infected patients. Two professors of IIT Goa are developing a more sensitive and accurate test for the detection of SARS-CoV-2, using blood samples. **Dr Bidhan Pramanick (School of Electrical Sciences)** and **Dr**

Raja Mitra (School of Chemical and Materials Sciences), working with collaborators from IIT Kharagpur, are creating a device that will check the blood samples for the presence of the particular antibodies corresponding to a coronavirus infection. The researchers aim to make the test high-sensitivity and low cost, using bio-compatible glassy carbon as an electrochemical sensor, thereby making it possible to detect even minor traces of the antibodies. This makes the test in question even faster than the current rapid tests. The research has already begun with an initial grant from the institute. The researchers estimate that the test will be ready within a year and will be actively used after the necessary approvals from ICMR.

EPIDEMIC MODELLING

In the absence of a vaccine or a drug, the COVID-19 pandemic is being tackled by various containment strategies, including testing and various levels of social-distancing. In light of this, an interdisciplinary team of IIT Goa professors is looking at a comprehensive strategy for efficient testing and evaluation of social-distancing norms using techniques in data science and epidemic modelling. **Dr Thaseem Tajudeen** and **Dr Sreenath Balakrishnan (School of Mechanical Sciences)** and **Dr Sreejith A. V.** and **Dr Clint P. George (School of Computer Sciences)** are evaluating and seeking to enhance the efficiency of the strategies currently in practice.
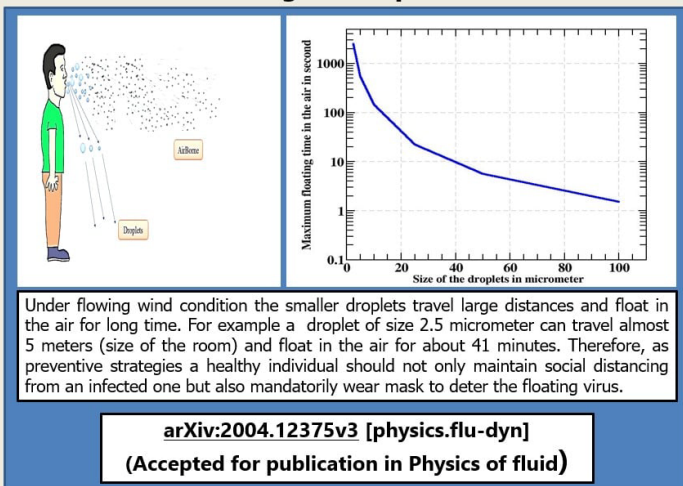
The number of tests can be reduced by pooling multiple samples. While the current ICMR guidelines permit only 5 tests to be pooled together, the number is as high as 32 in other countries. Since pooling efficiency depends on the percentage of positive cases in the tested samples and requires real-time adjustment, the professors at IIT Goa have developed mathematical relations for calculating the efficiency of pooling for various numbers of pooled samples and the percentage of positive test cases. Other variables, such as errors during testing and limits of detection, are also being accounted for. The team is also using network theory to understand how the infection spreads under various containment strategies to evaluate their suitability.

As it becomes increasingly evident that the trajectory of the spread of COVID-19 in India is unique, the need to develop India-specific predictive models has become urgent. On these lines, the team from IIT Goa is working on developing models and predictive algorithms on the spread of COVID-19 pandemic specific to the Indian population. This team is studying the patterns of susceptible population and transmission dynamics of the pandemic, using the data available locally and globally.

RESEARCH on AIRBORNE TRANSMISSION

Responding to the urgent need for a quantitative understanding of the propagation of droplets containing the SARS-CoV-2 virus by infected individuals during sneezing and coughing, faculty members from multiple departments at IIT Goa are collaborating to produce definite scientific results in this regard. **Dr Santosh Kumar Das (School of Physical Sciences, IIT Goa)**, in collaboration with **Prof. Jan-e Alam (Variable Energy Cyclotron Centre, Kolkata), Dr Salvatore Plumari (University of Catania, Italy)** and **Prof. Vincenzo Greco (University of Catania, Italy)**, has employed numerical approaches to study the effect of atmospheric conditions in ascertaining the proliferation and lifespan of the infected respiratory droplets as well as to propose safe social distance. The researchers have concluded that both the temporal and geometric distance that a healthy individual should maintain from an infected one is determined by the smaller droplets under the condition of wind flow, which makes the use of masks mandatory to prevent the virus. The quantitative results obtained here will be key to the devising of strategies for preventing the spread of other types of droplets containing microorganisms.

Under flowing wind condition the smaller droplets travel large distances and float in the air for long time. For example a droplet of size 2.5 micrometer can travel almost 5 meters (size of the room) and float in the air for about 41 minutes. Therefore, as preventive strategies a healthy individual should not only maintain social distancing from an infected one but also mandatorily wear mask to deter the floating virus.

arXiv:2004.12375v3 [physics.flu-dyn]
(Accepted for publication in Physics of fluid)

In addition to the work of Dr Santosh Kumar Das (School of Physical Sciences) in solving differential equations computing the evolution of the virus in the air, other faculty members are also contributing significant effort towards addressing other problems represented by the COVID-19 pandemic. A six-member team from the **School of Mechanical Sciences** is performing numerical and experimental investigations to understand the extent of the spread of the virus through coughing and sneezing. While **Dr Rudra Narayan Roy, Dr Ponnulakshmi VK** and **Dr Sudhakar Yogaraj** are working on the numerical aspect to predict the

droplet dispersions, penetration length of the droplets and the effect of evaporation on droplet histories in the surrounding air, **Dr Anirudha Ambekar, Dr Thaseem Thajudeen** and **Dr Arindam Das** are designing an experimental set up to study droplet size distribution, droplet transport and estimating the effectiveness of different PPEs. The study will involve flow visualisation using a high-speed camera to understand the propagation of clouds of water droplets once they are injected in the atmosphere during coughing and sneezing.

TREATING CORONA with CORONA

The coronavirus has been grabbing the headlines for months and currently holds our collective con-sciousness in fascination. However, the term 'corona' has a different meaning within the disci-pline of electrical engineering, where 'corona' is used to refer to a localized breakdown of air due to a highly non-uniform electric field, leading to the generation of ions. The 'corona' process also results in the occurrence of UV light. Studies have shown that coronaviruses are weakened by exposure to the ion and UV environment. Therefore, it is possi-ble to use the electrical 'corona' to sterilize corona-virus-infected surfaces.

Seeking to optimize ion and UV generation that can lead to effective treatment of coronavi-rus-infected surfaces, researchers from IIT Goa - **Dr Shakti Prasad (School of Electrical Sciences), Dr Arindam Das (School of Mechanical Sciences)** and **Dr Raja Mitra (School of Chemical Sciences)** - have started preliminary studies on the surface-charging effect of corona discharge. The team also plans to build a prototype of a corona discharge-based sterilization equipment which can effectively sanitize viral surfaces. The long-term implications and value of this project lies in its use for the mass-sterilization of PPE kits and effective disinfection and sanitization of surfaces, leading to effective deceleration of virus spread.

ACADEMIC ACTIVITIES DURING the ONGOING PANDEMIC

by Dr Sachin D. Kore, Dean (AP and SA), IIT Goa

Due to the COVID-19 pandemic, IIT Goa completed its Spring 2020 semester in online mode. As a precautionary measure, all students were asked to vacate the hostel by March 19. By the declaration of nationwide lockdown on March 24, 2020, all classes had resumed in online mode. Various modes of online teaching were employed for completing the syllabus. A majority of students were able to attend and participated in the online classes. However, some students living in remote areas faced the problem of poor internet connections and to help such students, IIT Goa sent them DVDs of teaching notes by post. Similarly, fresh and different modes of evaluation were followed, such as open book examination, online viva, online tests and assignment submissions.

It was only due to the tireless efforts of everybody involved that IIT Goa's first batch graduated on schedule in July 2020. These students are now able to join different professions or move on to postgraduate programs. The IIT Goa Senate approved the special 'P' grade - as a notionally pass grade - to help students who underperformed due to the COVID-19 situation. With this grade, students can improve their score after the pandemic is over.

The regular academic calendar was also modified to offer more time for teaching and to conduct online examinations.

IIT Goa's Senate has meanwhile observed that learning through online teaching is not as effective as classroom instruction. It is therefore necessary to bring students back on campus as early as possible. However, recently IIT Goa has handed over its 640-bed hostel to the government of Goa to be used as a COVID care centre. For this reason, as well as the ongoing uncertainty of the pandemic situation, it is not possible to call students back to campus immediately. Hence the Senate has decided to start the Autumn 2020 semester from September 1, 2020, in online mode till further instruction. The situation will be reviewed during the mid-semester period and if possible, students will then be called back on campus. In view of the current situation, other adjustments have had to be made. IIT Goa has decided to postpone the starting of the new program in Chemical and Materials Engineering. New Ph.D. candidates in all schools were interviewed and selected in online mode only. M.Tech admissions were also completed through the online common offer acceptance portal (COAP), with help from IIT Madras.

During the upcoming semester, IIT Goa will be focusing on the Flipped Classroom concept where students will be given lecture notes and recorded lecture audio and video files prior to the class. Students will then be encouraged to discuss their understanding and doubts during the regular scheduled online classes. Continuous evaluation will be carried out with the help of various class assignments, class/term projects, seminars, quizzes, open-book examinations, mid-semester and end-semester examinations. These examinations will test students' ability to solve complex practical problems based on their understanding of the subject.

In-person reporting of new B.Tech, M.Tech and Ph.D. students has been postponed. These students will be called on campus after the situation becomes normal. During this period, all new students will participate in online classes. Research work of students working on experimental problems is being majorly affected and they will be given priority to return to campus as and when the situation becomes normal. IIT Goa is preparing a detailed plan for bringing all its students back on campus in a phase-wise manner.

(IIT Goa hostel complex was handed over to the local district authorities in the last week of July, 2020 to set up a Covid-19 care centre)

IN NEWS

IIT SIGNS MoU with PWD, GOVT of GOA, and GEC

Dr B. K. Mishra (4th from left) with dignitaries from GEC and PWD

In a move that highlights the Institute's commitment to society's welfare and growth, IIT Goa signed an MoU with the Public Works Department, Government of Goa and the Goa College of Engineering to work on sustainable water distribution within the state, in **July 2020**. With the rising demand for clean water, this collaboration seeks to draw up an effective plan to tap small and medium water bodies to meet local requirements keeping in mind waterbody conservation and the development of better distribution systems. In this stead, a study had been conducted at the village of Savoi Veram, wherein five local waterbody sources were identified. The plan now is to develop a treatment plant for the village.

IIT Goa's Pioneer Batch Graduates

Despite the challenges ushered in by the pandemic, IIT Goa's pioneer batch graduated in July 2020. The batch, consisting of eighty two students, reached the milestone on schedule due to the tireless efforts of everybody involved.
Hearty Congratulations, Graduates!

INSTITUTE EVENTS

INTERNATIONAL DAY OF YOGA, 2020

IIT Goa celebrated the 6th International Day of Yoga by organising an online yoga session on **June 21, 2020**. Helmed by **Mr Manmohan Sewda (Jr. Assistant, IIT Goa)**, the session saw enthusiastic participation from the IIT Goa community. The online session, which lasted for an hour, ended with the participants observing two minutes of silence to pay respect to the jawans who lost their lives in the Galwan Valley clash.

IIT Goa community during the online yoga session
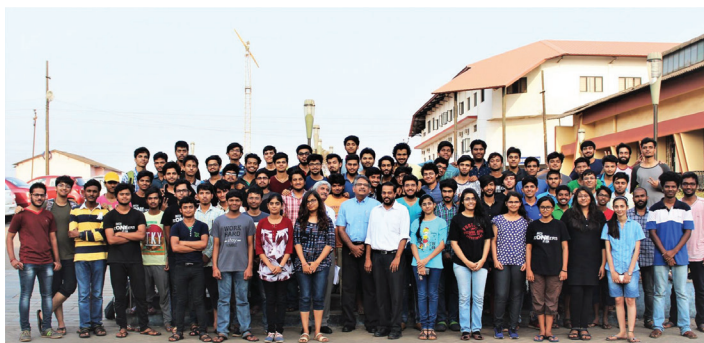
"The One With Everyone"- Class of 2020

5TH FOUNDATION DAY

Foundation Day celebration conducted online

IIT Goa celebrated its 5th Foundation Day on **July 30, 2020,** by organising a virtual lecture titled **Creating an IIT in a Remote Greenfield by Prof. Timothy A Gonsalves, Founding Director, IIT Mandi.** The event, broadcasted live on YouTube and simultaneously hosted on Microsoft Teams, was kickstarted with a recording of "Saraswati Vandana" that was set to tune and sung by students. The Annual Report for the academic year 2019-2020 was also released during the online session.

Chief Guest, Prof Prof Timothy A Gonsalves, Founding Director, IIT Mandi

INSTITUTE COLLOQUIA

TALK on ONLINE INSTRUCTION

Prof. Sridhar Iyer, IIT Bombay, delivered a talk titled **Transitioning from Physical Classrooms to Online Instruction on June 22, 2020.** The talk deliberated on various challenges in online instruction and discussed related facets like the difference between emergency remote teaching and online instruction, concepts of learner-centric model pedagogy, technology tools required etc. The talk, hosted on Webex, was also attended by faculty members of IIT Palakad and IIT Dharwad.

INSTITUTE WORKSHOP on 'ATMANIRBHAR BHARAT'

IIT Goa faculty during the online workshop

In keeping with the Atmanirbhar Bharat initiative, IIT Goa organized a one-day virtual workshop on **Self-Reliant India - Opportunity for All** for its faculty members on **July 8, 2020.** Various members of the IIT Goa faculty pitched in on different topics related to self-reliance including 'Social and Economic Impact', 'Education: Post-Covid', 'Energy and Environment' and 'Blue Economy' to name a few. The session on 'Blue Economy' was also attended by Prof. Manell Zakharia, a special guest from one of IIT Goa's French partner institutions, École Navale.

AT THE SCHOOLS

A webinar by **Dr Salil Kashyap, Assistant Professor, IIT Guwahati,** titled "Role Of Channel State Information In Adaptation And Resource Allocation In Next Generation Wireless Networks" was organized by the **School of Electrical Sciences** on **July 11, 2020.**

A web lecture by **Prof. Marco Ruggieri, Lanzhou University,** titled "An Introduction To Glasma And The Early Stage Of High Energy Nuclear Collisions" was organised by the **School of Physical Sciences** on **July 29, 2020.**

FACULTY POINT

Awards, Honours, and Recognitions

Dr B. Subudhi, School of Electrical Sciences, was appointed an Associate Editor of *IEEE Access* for three years.

Dr B. Subudhi, was an invited panellist for *IEEE TENSYMP 2020*, Dhaka, Bangladesh, July 2, 2020.

Dr S. Sashidhar, School of Electrical Sciences, served as a reviewer for *IEEE Transactions on Energy Conversion, IEEE Transaction on Emerging and Selected Topics in Power Electronics and IEEE IES IECON International Conference*, Singapore, 2020.

IEEE Potentials, of which **Dr Sharad Sinha,** School of Mathematics and Computer Sciences, is Editor-in-Chief, has won two Awards of Excellence (in Magazines and Illustration-Design categories) in the 2020 APEX Awards for Publication Excellence for its Sept.-Oct. 2019 issue on Disney Imagineering. https://apexawards.com

Dr Sharad Sinha joined as a TPC Member of *5th International Conference on Computer Vision & Image Processing*, December 4-6, 2020, IIIT Allahabad.

SCHOOL OF ELECTRICAL SCIENCES

Publications:
Sanila K.S. and **Neelakandan R**, "Structured Multiplexing of Quadrature Spatial Modulated Signals and Compressive Sensing Detector", *IEEE Communication Letters*, May 2020.

Anupam Sharma and **S. Sashidhar**, "A Novel Ring Permanent Magnet Flux Reversal Machine for a Direct-Drive Wind Generator", accepted in 46th *IEEE IES IECON International Conference*, Singapore, 2020.

R. Rout and **B. Subudhi,** "Design of Line-of-Sight Guidance Law and a Constrained Optimal Controller for an Autonomous Underwater Vehicle", *IEEE Transactions on Circuits and Systems II: Express Briefs*, doi: 10.1109/TCSII.2020.3000597

Kuntal Deka, Minerva Priyadarsini, Sanjeev Sharma, Baltasar Beferull-Lozano, "Design of SCMA Codebooks Using Differential Evolution", presented in *IEEE ICC'20 Workshop - NOMA5G*, 7-11 June 2020.

Invited Talks/Seminars/Workshops/Webinars:
Dr B. Subudhi, "Control of Microgrid System", *One Week Online FDP on Emerging Trends in Electrical Engineering*, G. H. Raisoni College of Engineering, Nagpur, June 16, 2020.

Dr B. Subudhi "Control of Flexible Robots", *One Week Online Faculty Development Webinar On Robotics and Control (RoboCon)*, NIT Silchar, funded by TEQIP III, July 15-19, 2020.

SCHOOL OF HUMANITIES AND SOCIAL SCIENCES

Invited Talks/Seminars/Workshops/Webinars:
Neeraja R., " Using Google Apps in Blended Learning", ELTAI, May 21, 2020.

Dr Sunil Paul, "Economics in the Age of Big Data", Christ University, July 10, 2020.

SCHOOL OF MATHEMATICS AND COMPUTER SCIENCES

Publications:
Mu, Jiandong and Zhang, Wei and Liang, Hao and **Sinha, Sharad,** "Optimizing OpenCL-Based CNN Design on FPGA with Comprehensive Design Space Exploration and Collaborative Performance Modeling", *ACM Transactions on Reconfigurable Technology and Systems*, June 2020, Article No.: 13.

SCHOOL OF MECHANICAL SCIENCES

Publications:

S. Pawar, R Valecha, **S. D. Kore**, "Finite Element Analysis to Study the Shearing mechanism in punch-less electromagnetic perforation of aluminium tubes", *International Journal of Materials and Product Technology*, 2020, 60 (1), 1-17.

S. Pawar, **S. D. Kore**, A. Nandy, "Comparison of Sheared Edge Zones Developed in Electromagnetic and Quasistatic Dieless Perforation", *Journal of Materials Engineering and Performance* 29 (2), 2020, 1146-1155.

G. Areda and **S. D. Kore**, "Mechanical Interlock Made by Electromagnetic Crimping for Axial Load Resistance Using Aluminum Tube and Steel Rod," *Journal of Testing and Evaluation* 48 (3), (2020): 2362-2376.

Sunay Pai, **Rajesh S. Prabhu Gaonkar**, "Combining Belief Functions Taking into Consideration Error in Judgment, International Journal of General Systems", *International Journal of General Systems*, 49:4, 438-448, May 2020.

Rajesh S. Prabhu Gaonkar, Akshay V. Nigalye, Sunay P. Pai, "Possibilistic Approach for Travel Time Reliability Evaluation", *International Journal of Mathematical, Engineering and Management Sciences (IJMEMS)*.

Sunay Pai, **Rajesh S. Prabhu Gaonkar**, "Safety Modeling of Marine Systems Using Neutrosophic Logic", *Journal of Engineering for the Maritime Environment (Proceedings of the Institution of Mechanical Engineers, Part M)*, June 2020, SAGE.

Invited Talks/Seminars/Workshops/Webinars:

Dr Thaseem Thajudeen, "Moving to Master Science in Technology". PSCMR College of Engineering and Technology, Vijayawada, India.

Patents:

Patent Title: Multi-Shot Fieldshaper Design For Em Crimping. **Inventors:** Dr Ashish Rajak (IIITDM Jabalpur) and **Dr S. D. Kore** (IIT Goa), Application No: 331351-001; Year: 2020.

SCHOOL OF PHYSICAL SCIENCES

Publications:

Plumari Salvatore, Coci Gabriele, Minissale Vincenzo, **Das Santosh K.**, Sun Yifeng, Greco Vincenzo. (2020) "Heavy-Light Flavour Correlations of Anisotropic Flows at Lhc Energies Within Event-by-Event Transport Approach", Physics Letter B, 805 135460, DOI:10.1016/j.physletb.2020.135460

Kurian Manu, Chandra Vinod, **Das Santosh K.** (2020) "Impact of Longitudinal Bulk Viscous Effects to Heavy Quark Transport in a Strongly Magnetized Hot Qcd Medium" Physics Review D 101, 9, 094024, DOI: 10.1103/PhysRevD.101.094024

K. Naveen, N. Kumar, S. Rani, T. K Mandal, A. Gaur, P. D. Babu, V. Siruguri, P. K. Majhi, **S. Kanungo**, A. Paul (2020) "Evolution of Novel Room-Temperature Multiferroic Material: Combined Experimental and First Principles Studies of Bi-Substituted Yfeo3" Accepted in the Bulletin of Materials Science (2020).

Invited Talks/Seminars/Workshops/Webinars:

Dr Santosh Kumar Das, "Heavy Quark Dynamics in QCD Matter", Tata Institute of Fundamental Research, Mumbai (Online), July 4, 2020.

Dr S. Kanungo, "Exploring Universal Phenomena in Different Energy Scales through Materials", Adamas University, Kolkata, July 12, 2020.

INSTITUTE INNOVATION COUNCIL

by Ms Twisha Bansal, Student Reporter

With the enforcement of lockdown in March, our students took initiative and aligned themselves with many online learning and training programs and opportunities offered by the MHRD (Ministry of Human Resource Development), AICTE (All India Council for Technical Education) and IIC (Institution's Innovation Council).

   The majority of online training programs were done in two batches. The first batch of programs (April 8-21, 2020) was driven by Dr Abhay Jere, Chief Innovation Officer (CIO), Ministry of Education, Govt. of India. The second batch (April 28, 2020- May 22, 2020) consisting of 15+ programs, was conducted with experts invited by AICTE and MHRD across multiple subject matters. Most of the programs were convened by Mr Dipan Sahu and other colleagues from the AICTE team.

   While over 25 students participated, attended and submitted reports that were uploaded to the MHRD portal, some student coordinators deserve exceptional recognition for their efforts. **Mr Mukul Kumar** (IV yr, UG, SMS) single-handedly coordinated the filing for 11 reports, overseeing them and also ensuring they were free of errors. **Ms Devyani Maladkar** (III yr, UG, SMCS) & **Mr Meghej Khandelwal** (IV yr, UG, SES) enabled the coordination and assimilation of reports for 15+ programs in the months of May and June 2020.

Student Presenters for Batch II			
Date	**Subject Expert**	**Title of the Program**	**Presenters**
April 28, 2020	Mr Dipan Sahu	National Innovation and Startup Policy for Students and Faculty 2019	Ms Devyani Maladkar and Mr Siddharth Singh Solanki
April 29, 2020	Mr Muthu Singaram	Role and Importance of Pre-Incubators, Incubators and Accelerators in HEIs	Ms Aastha Jain and Ms Svara Mehta
April 30, 2020	Ms Vandana Thakur and Mr Amit Lokhande	Hangout with Emerging Innovator & Entrepreneurs Supported through MIC & AICTE	Ms Twisha Bansal and Ms Khushboo Gupta
May 01, 2020	Ms Geetika Dayal	Role of Network Enablers in driving I&E in HEIs	Mr Nidhish Sawant and Mr Anmol Paliwal
May 05, 2020	Dr Sunil Shukla Dr Amit Dwivedi Mr Mayank Patel	Entrepreneurial Motivation and Business Idea	Mr Shubham Garg and Mr Naveen
May 06, 2020	Ms Prajaktha Kulkarni and Mr Sanket Inamdar	Identify Right Problem and Solution using the Double Diamond Approach in Design	Mr Uppala Suman and Mr Anshuman Upadhyay
May 07, 2020	Dr Sanjeeva Kumar Majumdar	Intellectual Property (IP) Management at Early Stage of Innovation and Start-ups	Mr Revanth Sharma
May 08, 2020	Mr Sushanto Mitra	Understanding Angel and Venture Capital Funding	Mr Deepraj Mahadik and Mr Pratik Arun Kale
May 12, 2020	Mr Harit Mohan	Legal and Ethical Steps - Productive Entrepreneurship and Startup	Ms Devyani Maladkar and Mr Siddharth Singh Solanki
May 13, 2020	Mr Sanjay Imamdar	Globalization and Entrepreneurship	Mr Satvik Bhatnagar and Mr Sarthak Walia
May 14, 2020	Dr Preet Singh	Role of Market Research and application of Tools from Idea to Startups Stage	Mr Ujjwal and Mr Siddhant Yadav
May 15, 2020	Dr Lakshmi Meera	Innovation Risk Diagnostic — Product Innovation Rubric (PIR)	Mr Namami Shankar and Mr Prateek Sen
May 19, 2020	Dr P.G. Makhija	Launching a business plan and launching a business	Mr Hrishikesh Kotwal
May 20, 2020	Dr Preet Singh	Role of Market Research and application of Tools from Idea to startups Stage - Advance Level	Mr Dewansh Chhatri
May 21, 2020	Dr Raman Gujaral	Frugal Innovations and Social Entrepreneurship	Mr Mukul Kumar and Mr Mahipal Singh Rathore
May 22, 2020	Mr Pulakit Jain Mr Lokesh Goswami and Mr Arpit Nandi	Interaction with student innovators and Entrepreneurs emerged from SIH	Mr Pranav Yeola

STUDENT JUNCTION

EVENTS

by Ms Aastha Jain, Ms Khushboo Gupta, and Ms Sejal Gupta, Student Reporters

IIT Goa student clubs hosted a series of online competitions to beat the lockdown languor. The competitions were held on the organizing clubs' official pages on Instagram and YouTube. An overview of their efforts is given below.

Guess the Gibberish Challenge

Panache, the institute oratory club, headed by Ms Sanya Vachher (III yr, UG, SMS), organized an Instagram filter challenge on **April 23, 2020**. The participants were asked to share stories using the "Guess the Gibberish" filter on Instagram. This event had a huge turnout with participants having fun trying out the filter and further nominating their friends to do the same.

Guess the Jingle Contest

Mukhota, the institute drama club, headed by Mr Anmoldeep Singh (III yr, UG, SMS), organized the "Guess the Jingle Contest" on Instagram. Held over a few weeks on the drama club's official Instagram page, the quiz competition, which began on **May 2, 2020**, was based on audio clips and drew massive participation. New quizzes were published every Sunday and Wednesday and the winners were announced two days later.

TV Trivia Contest

Panache, the institute oratory club, organized a month-long quiz event, "TV Trivia", on Instagram. The contest, which went online on **April 26, 2020**, was conducted twice a week. Interesting multiple choice questions based on different TV series were uploaded as stories on the club's official Instagram page and winners were declared the next day. The contest was an attempt by the club to keep the binge-watchers invested and entertained during the lockdown.

Quarantine Jams

Orion, the institute music club, headed by Mr Aaryan Kadam (III yr, UG, SES) , organized "Quarantine Jams" on Instagram for music lovers. The contest, which began on **April 9, 2020**, called for entries in two categories, vocals and instrumental. Passionate musicians were given a time limit of 2 minutes for their performances and their entries were uploaded on Orion's Instagram handle. The contest saw wholehearted participation from music enthusiasts and was one of the most loved and popular events conducted during the lockdown period by the institute.

Capture Quarantine

Originals, the institute film and photography club, headed by Mr Devang Jain (III yr, UG, SMCS), organized a 10 week-long challenge called "Capture Quarantine". The challenge, which went live on **April 12, 2020**, was a photography contest wherein the participants had to submit their entries on Instagram, based on a new theme which was unveiled every Sunday. The winners of each week's challenge were announced the following week.
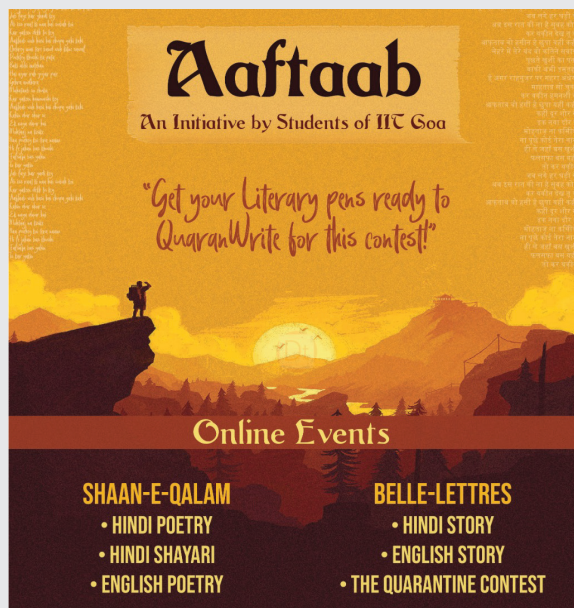
Aaftaab

In celebration of imaginative prowess and literary zeal, *Qalam*, the literary club of the institute, headed by Mr Saksham Goyal (III yr, UG, SMS), organised "Aaftaab", an all India online inter-college literary fest. Entries were called for different categories like short story writing and poetry in English and Hindi, Hindi shayari etc. The event which was announced on **April 26, 2020** received overwhelming response.

Link: https://www.youtube.com/watch?v=NmdBVkop3Cc

Quarantine Dance Video

Meraki, the institute dance club, made a heartfelt effort to keep themselves and the larger IIT Goa community entertained during the lockdown by coming up with a video compilation of students dancing to the popular Bollywood song, "Gallan Goodiyan". The initiative was spearheaded by the dance club head, Ms Yuti Vagasia (III yr, UG, SMS), while the video was compiled and edited by Mr Devang Jain (III yr, UG, SMCS).
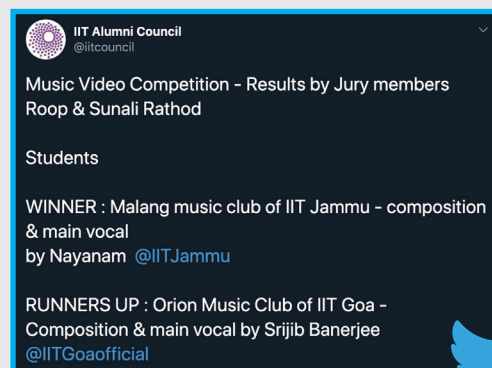
ACCOLADES

by Mr Neeraj Krishnan, and Mr Shubham Garg, Student Reporters

IIT Goa's music video **'Jeetenge Hum'**, secured the **second place** among all participating IITs in the **Theme Music Video Competition** conducted by the **IIT Goa Alumni Council**. The song was composed, sung and recorded by members of the institute's music club, Orion. The music and background score was composed by Mr Aaryan Kadam (III yr, UG, SES) and Mr Harshil Chaudhary (IV yr, UG, SES), while lyrics and vocals were contributed by Mr Shrijib Banerjee (II yr, PG) . The video was a compilation of short clips of everyday life during the quarantine recorded by var ous students of the institute. The music video was conceptualized and edited by Mr Devang Jain (III yr, UG, SMCS) of Originals (IIT Goa's film and photography club).

Link: https://www.youtube.com/watch?v=WC7dvNKeosA

IIT Alumni Council
@iitcouncil

Music Video Competition - Results by Jury members Roop & Sunali Rathod

Students

WINNER : Malang music club of IIT Jammu - composition & main vocal
by Nayanam @IITJammu

RUNNERS UP : Orion Music Club of IIT Goa - Composition & main vocal by Srijib Banerjee @IITGoaofficial

Ms Sejal Gupta (II yr, UG, SMCS) and **Ms Twisha Bansal (II yr, UG, SMCS)** were chosen for **TalentSprint Women Techmakers Engineers Fellow Scholar Program** which is sponsored by Google.

Ms Sejal Gupta

Ms Twisha Bansal

Mr Abhishek Varghese (alumni, UG, SMCS) was a member of the team CoVerified which won the track "Surfacing and Communicating Covid19 Truth" of the **MIT COVID19 Challenge - Beat the Pandemic II.** They designed a framework that combats misinformation on social media in a scalable and nonpartisan manner by making vetted experts more visible on social media platforms.
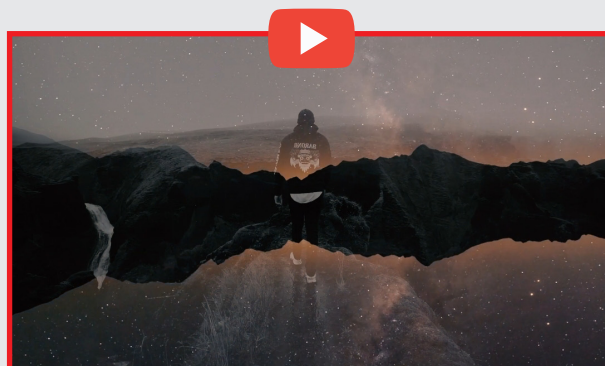

Online Awards Ceremony

Team CoVerified

Mr Surya Shukla (II yr, UG, SES) and **Mr Naveen Mahanwal (II yr, UG, SES)**, members of Originals (IIT Goa's film and photography club), secured a special mention in **The Silver Edit Competition** organized by **Silverscreen, IIT Bombay.**

Link: https://www.youtube.com/watch?v=Gov4z_dKPuw

Mr Prasoon Vishwakarma's (IV yr, UG, SES) paper, co-authored with Dr T. S. Rathore, titled "Transformation of Non-NDD function to NDD function" was published in *IOSR Journal of Mathematics (IOSR-JM)*.

Mr Prasoon Vishwakarma

Mr Ujjwal Rana (II yr, UG, SES) and **Mr Shubham Garg (II yr, UG, SES)** won the Arduino Challenge held at NIT Goa as part of its annual techno-cultural fest Saavyas '20.

Certificates received by Mr Rana and Mr Garg

NEW APPOINTEES

IIT Goa fraternity welcomes the new joinees

Dr Vijeta Gaonkar

Part-time Medical Officer

Mr Shubham Pai Raikar

Office Assistant (F&A)

Ms Lecicia Jenesis Fernandes

Office Assistant (F&A)

\\editorial board

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