



**BITS** Pilani  
Pilani Campus

Semester-I notes 2021-22

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Pilani Campus



# Editorial

Despite uncertainties and challenges of the present pandemic-stressed world, the semester exhibited an untiring BITSian spirit of excellence and growth. Connecting with academia and research worldwide and working together for newer perspectives and solutions, the semester abounded with a considerable number of distinguished lectures by eminent speakers, and also our faculty sharing their knowledge, experiences, and skills at various national and international forums as resource experts. Sponsored research projects from various reputed agencies espouse our constant engagements to make significant contributions to various areas of inquiry. As a signatory to the DST-GATI (Gender Advancement for Transforming Institutions) charter, BITS Pilani is committed to creating transformational environment with focus on gender equity and women empowerment.

The upcoming BITS Pilani Innovation and Incubation Center (BPIInC) is an important milestone toward being in the forefront of entrepreneur and technological innovations, and providing solutions to the vital problems of society. Setting up an oxygen plant at Birla Sarvajanik Hospital with a gracious donation from alumni is an indomitable spirit of the BITS community to serve humanity. At the student front, NSS and Nirmaan also organized health and vaccination camps in nearby villages. Besides, students winning scholarships, awards and prizes at various events mark writing success stories in this cutting-edge competitive world.

An upbeat event of physical exuberance this semester was BPL, BITS Premier League, a sports extravaganza that saw enthusiastic participation of over 1600 students as well as faculty in numerous indoor and outdoor sports events and some thrilling wins.

Embraced with human values, our journey of attaining newer heights goes on...

## Independence Day

The 75<sup>th</sup> Independence Day was celebrated at BITS Pilani, Pilani campus. Prof R. N. Saha, Acting Vice Chancellor BITS Pilani and Prof Sudhirkumar Barai, Director, Pilani campus, hoisted the National Flag, a moment of pride for all attendees. Mr. Kishore Singh, Chief Security Officer and his team also saluted the tricolor. Prof B. K. Rout, Prof S. K. Verma, Prof Arya Kumar, Prof A. P. Singh and many dignitaries graced the occasion. The fervor of patriotism, unified diversity and rich cultural heritage of India was beautifully brought forth through the songs sung by students under the guidance of Dr. Anil Rai. This was followed by administration of national pledge and national anthem sung with enthusiasm by all. The event was coordinated by Prof Shilpi Garg, Faculty In-charge, Institute Functions.



## Foundation Stone laid for BITS Pilani Innovation & Incubation Center

The Alumni Relations Division, BITS Pilani organised Bhumi Poojan to mark the beginning of construction of upcoming BITS Pilani Innovation and Incubation Center (BPIInC) on August 9, 2021. The center aims to enhance entrepreneurial activities, which would help students, faculty and the local community to fulfill their dream of becoming entrepreneurs. It would also instill interest and motivate students to use technology to solve vital problems of society. The center would be built in an estimated area of 38,500 sq. ft and will be a G+2 structure. BPIInC will facilitate a 100 seater working space, a conference and a meeting room, multi specialized labs, administrative offices, common area, pantry and other additional facilities.

Foundation Stone Ceremony of BPIInC



The function was attended by donor alumni – Mr. Rakesh Verma, Founder and Chairman, MapmyIndia, Mukesh Sharma, Founder, QA Infotech, Nagarpalika Chairman, Mrs. & Mr. Kamlesh Ranwa, Nagarpalika Vice-Chairman Shri Rohtash, Prof Sudhirkumar Barai, Director Pilani campus, Prof Arya Kumar, Dean, Alumni Relations, Prof S. K. Verma, Dean, Administration and other dignitaries of Pilani.

Speaking at the ceremony, Mr. Mukesh Sharma expressed his gratitude towards the Institute and said, "The Center would inspire many youngsters to form startups, and contribute to nation building". He also thanked his family, and his father Shri K. M. Sharma, who served the Institute for more than 40 years. Mr. Rakesh Verma added, "BITS graduates are distinct because of the unique education process building logical thinking and leadership mindset, that contributes a great deal in taking up entrepreneurial ventures."

Prof Sudhirkumar Barai, thanked the gracious contributions of BITS alumni and emphasized the importance of starting anything with positive thoughts. Prof Arya Kumar, Dean, Alumni Relations said, "The biggest learning from BITS is the development made by its entrepreneurs in economic terms towards the country. Today, there are more than 7400 founders from BITS, and the top 50 alumni's companies' wealth is more than \$70 Billion". He also informed that the activities of BPIInC will be mentored by alumni and will receive major funding from the alumni and CSR industry. The Center will have 6-8 advanced technology labs for innovation.

Foundation Stone Ceremony of BPIInC



The event was attended by various alumni, their family, staff and faculty members. The Center is expected to be operational in 2022.

## BITS Pilani Researchers on NDTV gadgets for their Outstanding Research

Dr Kamlesh Tiwari, Department of Computer Science and Information Systems, and his team have developed what appears to be a first-of-a-kind human authentication through teeth for mobile and other hand-held devices. The news featured on Gadgets 360, an NDTV venture on August 16, 2021. The app acquires biometric samples using the camera on a mobile handset. The application has specific markers that register the teeth of a human for authentication, similar to the apps that record the entire face. The study "Deepteeth: A Teeth-Photo Based Human Authentication System for Mobile and Hand-Held Devices" was authored by Geetika Arora, Rohit K. Bharadwaj, and Kamlesh Tiwari from BITS Pilani, Pilani campus.

## Inauguration of Oxygen Plant

The alumni batch of 1970-1975 of BITS Pilani donated an oxygen generation plant to Birla Sarvajanik Hospital, Pilani. Mr. Umardeen Khan, District Collector, Prof R. N. Saha, Acting Vice-Chancellor, BITS Pilani, Prof Sudhir Kumar Barai, Director, Pilani Campus, Mr. Madhusudan Manish Malani, Director, Sarvajanik Hospital, Mr. Viplav Neola, Assistant Director, Women Empowerment Department, Rajasthan and a few BITS alumni of 1970-75 batch Mr. Dinesh Sharma, Mr. Arun Kumar, Mr. Ashok Sikka, Mr. Kishan Rungta, Mr. Shrikant Agarwal, and Mr. Raj Kumar Kedia, Inaugurated Pilani's first oxygen plant installed at Birla Sarvajanik Hospital on September 04, 2021.

The technology for the plant has been provided by Oxymat Denmark who is the world's most reputed plant supplier. The core generator has been imported from Oxymat and the total project has been executed by Airgases Projects Pvt. Ltd. Prof R. N. Saha expressed his gratitude for the wonderful gift by the batch of 1970-75 which will help improve the health services in Pilani and serve the community. He further added that the alumni's generous support and collaboration is a matter of huge pride.

On behalf of the entire batch of 1970-75, Mr. Arun Kumar, expressed concerns over oxygen shortage for the people of Pilani in the second wave of pandemic, and talked about their decision of donating an oxygen generation plant to Pilani in collaboration with Birla Sarvajanik Hospital. He expressed deep gratitude towards their alma mater and also about their resolve to help uplift the health services in Pilani.

### Inauguration of Oxygen Plant



Mr. Umardeen Khan emphasized the need for an oxygen plant in the Jhunjhunu district and also informed about the other efforts by the government. He thanked the BITS alumni of 1970-75 batch and Birla Sarvajanik Hospital

team. Mr. Madhusudan Manish Malani reiterated the importance of an oxygen plant in Pilani and thanked the alumni of batch 1970-75 for their generous donation to help improve the healthcare conditions.

## An interactive session with Brahma Kumaris on 'Rejuvenating through Self Exploration'

BITS Pilani, in association with Brahma Kumaris, organized an interactive session with Sister Shivani on 'Rejuvenating through self exploration' on September 11, 2021. The objective of the session was self-exploration toward value creation for the entire humanity. The session delved deep into a discussion on how to examine one's strengths by feeding on energy, thoughts, body, and emotions enabling an individual's mind to realize the fullest potential.



**BK Shivani**  
International Motivational Speaker, Brahma Kumaris

## World Pharmacist Day

The Department of Pharmacy, Pilani Campus celebrated the World Pharmacist Day 2021 on September 25, 2021 by organizing a Virtual Conference on the theme, "Pharmacy: Always trusted for your health". The objective of the conference was to recognize the role of pharmacists in healthcare and to acknowledge the vast contribution of Prof R. N. Saha, Acting Vice-Chancellor, BITS Pilani in the field of Pharmacy.

Prof Hemant R. Jadhav, Head of the Department, gave a welcome note and highlighted the life-saving role played by pharmacists even in the distressful times of pandemic. Prof R.N. Saha advocated the power of counselling, care and mental support provided by pharmacists in the recovery of physical and mental health. He reinforced the importance of building trust with patients to ensure their well-being. He congratulated the department on achieving newer heights and strengthening the PhD program and research goals.

Prof Sudhir Kumar Barai, Director, Pilani campus recognized the contributions of Prof R. N. Saha in teaching, research, administration and management of the institute. He also acknowledged the untiring support rendered by pharmacists across the world during the pandemic and

providers of vaccines to preserve the health and safety of the community.

Prof R. Mahesh enlightened the audience about Prof R. N. Saha's journey as a pharmacist and member of Department of Pharmacy, BITS Pilani since 1986. The conference featured lectures by eminent speakers, Prof Atmaram P. Pawar, Poona College of Pharmacy (*Role of pharmacist in Healthcare*), Dr. Pronobesh Chattopadhyay, Scientist-F, Head of Division and Admin, DRDO, Tezpur (*Healthcare for Defense Personnel*) and Dr. Rahul Somani, Head- Global Pharmacovigilance, Alkem Laboratories Ltd. Mumbai (*Role of pharmacist in patient safety*).

#### **BITS Pilani selected to participate in GATI project of DST, GoI**

BITS Pilani is among the 30 reputed institutions selected to participate in the GATI (Gender Advancement for Transforming Institutions) project of DST (Department of Science & Technology, Government of India) in its journey of creating an ecosystem to build competencies and adopt best practices and pathways for transformational changes with focus on gender equity and women empowerment.

Project GATI was announced by the Hon'ble President of India at a celebratory programme dedicated to Women in Science held at Vigyan Bhavan, New Delhi on February 28, 2020 on the National Science Day.

Project GATI pilots a sustainable self assessment and accreditation model under which the Institute would be required to create SMART (Specific, Measurable, Achievable, Relevant and Time-bound) action plans for systemic and cultural transformations. A metric-based self-assessment application followed by peer review would be employed to establish how well the principles of the GATI charter are imbibed by the Institute in their framework through outcome focused initiatives.

BITS Pilani looks forward to a partnership with Athena SWAN UK and GATI India to identify gaps, systemic barriers and structural factors, adopt best practices & strategic plans and implement policy level decisions to create an enabling, non-intimidating organizational culture especially for women in STEMM (Science, Technology, Engineering, Medicine and Mathematics) disciplines in all stages of their career progression.

The DST team led by Dr. Nisha Mendiratta, Head, WISE-KIRAN Division, DST and Dr. Pratibha Jolly, Principal Investigator, GATI Pilot Framework, Academic Consultant,

NAAC have been regularly enthusing & guiding the selected 30 Institutions on taking up this transformative journey. The British Council is facilitating the collaboration with six Athena SWAN accredited Institutes in UK. BITS Pilani is being mentored by University of West of Scotland as the UK partner.

Prof Souvik Bhattacharyya, Vice-Chancellor, BITS Pilani and all campus directors are committed to bring transformational changes at institute level in alignment with the vision & aim of GATI. Prof Sudhirkumar Barai, Director, Pilani Campus is leading the cross-campus GATI Self-Assessment team (GSAT) as the chairperson.

## **Academia:a confluence of ideas**

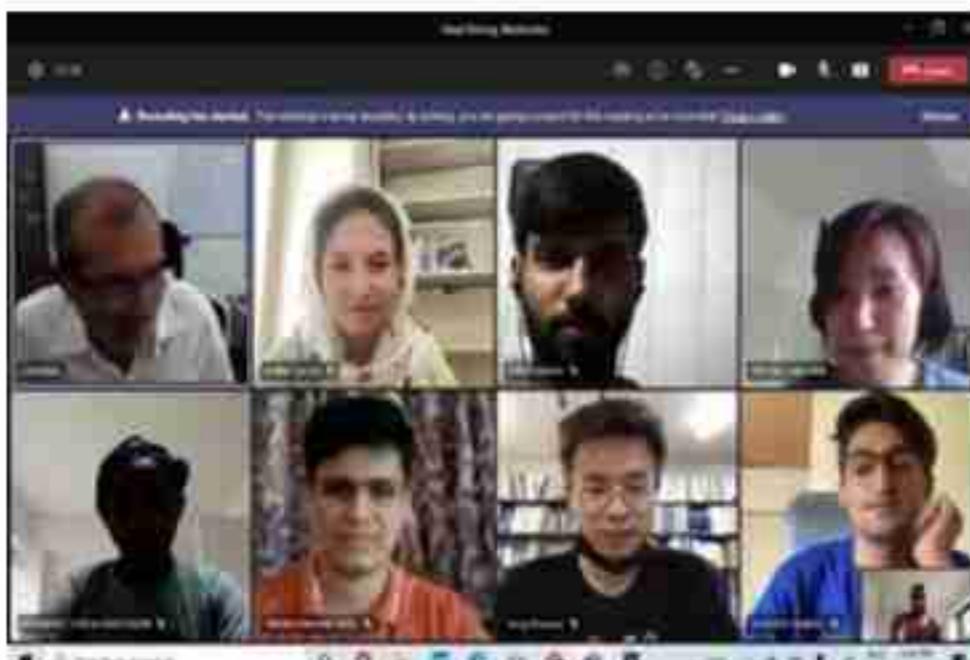
### **Seminars/Conferences**

### **Workshops/Training Programs**

### **Enriching the Learning Experience: Visits by Faculty**

**Prof Arya Kumar, Department of Economics and Finance**, delivered an "Idea Mining Workshop" with special relevance to SDGs, a one-unit, 22 hrs course, for the postgraduate and PhD students of Hiroshima University during September 3-12, 2021. The workshop provided an opportunity to two BITS Pilani students pursuing ME and PhD to undergo this workshop under the exchange programme.

Prof Arya Kumar's "Idea Mining Workshop"





**Dr Vinay Chamola, Department of Electrical and Electronics Engineering,** served as a workshop co-chair of IEEE Global Communications Conference (IEEE Globecom) 2021 and IEEE International Conference on Advanced Networks and Telecommunications Systems (IEEE ANTS) 2021. Dr. Chamola

presented a paper titled "Hardware Testbed based Analytical Performance Modelling for Mobile Task Offloading in UAV Edge Cloudlets", at the IEEE 94th Vehicular Technology Conference (VTC2021-Fall), Norman, OK, USA on September 28, 2021, and a paper titled "A Blockchain and Machine Learning based Framework for Efficient Health Insurance Management" in the 19th ACM Conference on Embedded Networked Sensor Systems, Coimbra, Portugal on November 16, 2021.

**Prof Atish T. Paul, Department of Pharmacy** was invited as an expert in the area of Natural Products Chemistry for Panel discussion in Brainstorming Sessions on "Organic Herbicides: Present Status and Way Forward" on account of Azadi ka Amrit Mahotsav at Indian Council of Agricultural Research-Weed Research Directorate, Jabalpur, India on October 7, 2021.

**Prof S. B. Singh, Department of Civil Engineering,** organized a workshop on "Fire-Resistance Guidelines for Hybrid Fiber-Reinforced Polymer Structural Components," at IIT Delhi on October 18, 2021 which was supported by Partnership 2020:U.S.-India Higher Education Cooperation, a collaborative initiative between U.S. Department of State and University of Nebraska at Omaha, USA.

**Prof Kamalesh Kumar, Department of Civil Engineering,** participated in Two Day Online National Webinar on "Foundations for Infrastructure Facilities: Principles and Sustainable Practices" organized by the Department of Civil Engineering, Don Bosco College of Engineering, Fatorda, Goa in association with Department of Civil Engineering, Indian Institute of Technology Madras, Chennai during September 2-3, 2021. Prof Kamalesh Kumar also completed AICTE Training And Learning (ATAL) Academy Online Elementary Faculty Development Programme on "Recent Advances in Forensic Analysis in Civil Engineering" held during September 27 to October 1, 2021 at Kalinga Institute of Industrial Technology.

## Invited Lectures/Talk by Faculty

**Dr Gautam Singhvi, Department of Pharmacy,** delivered a talk on "QbD in Pharmaceutical Product Development" at the National Institute of Pharmaceutical Education and Research Kolkata, India on September 13, 2021.

**Prof Devendra Kumar, Department of Mathematics,** delivered a talk on "Infinite Sequences and Series" at The Human Resource Development Centre, Jamia Millia Islamia in the online 2-Week Refresher Course in Computational & Mathematical Sciences during October 22 to November 05, 2021.

**Prof Arya Kumar, Department of Economics and Finance,** delivered a talk on "Achieving Excellence in Higher Education" and "UGC Initiatives for Quality in Higher Education" on August 2 and 28, 2021 respectively in the Faculty Induction Programme organized by UGC-HRDC, University of Rajasthan between August 2-31, 2021. He took an expert session on September 6, 2021 in the International Entrepreneurship Summer School hosted by TU Braunschweig and Ostfalia University of Applied Sciences at their joint Entrepreneurship Hub organized between September 6-13, 2021. He delivered two talks titled "Challenges to Higher Education - NEP" and "Achieving Quality and Excellence in Higher Education" on November 11 and 26, 2021 respectively in the Refresher Course in Educational Policies & Reforms: New Perspectives organized by UGC-HRDC, University of Rajasthan between November 11-27, 2021. He was also invited to deliver a talk on "Entrepreneurship and Innovation as Career Opportunity" in the workshop organized by IIIT Nagpur on December 11, 2021.

**Prof Manoj Kumar Soni, Department of Mechanical Engineering** delivered an invited online talk on "Online Assessments: Opportunities and Challenges", in six-day AICTE-ISTE sponsored virtual induction/refresher programme on Pedagogy and Assessment through Digital Learning Platform (PA-DLP'21) organized by the department of mechanical engineering, Bannari Amman Institute of Technology, Sathyamangalam during December 7-13, 2021.

**Prof Raj Kumar Gupta, Department of Physics,** delivered an online talk on "Thin Films of Mesogenic Molecules" at Reva University, Bangalore on the occasion of Reva Research Conclave-2021 organized on December 16, 2021.

**Prof S. B. Singh, Department of Civil Engineering,** delivered a keynote lecture at the International E-Conference on Sustainable Development in Concrete Technology (ICSDCT2021) organized by DY Patil College

of Engineering, Pune, AICTE, and ACI on August 19, 2021. He delivered another keynote Lecture at the International Conference on "Recent Advances in Modeling and Simulation Techniques in Engineering and Sciences (RAMSTES-2021)" held at Manipal University, Jaipur during December 8-10, 2021. He also delivered a keynote lecture at the Third International Conference on Emerging Research in Civil, Aeronautical, and Mechanical Engineering (ERCAM2021) held at NITTE Meenakshi Institute of Technology, Bengaluru on December 17, 2021.

**Dr Gaurav Nagpal, Department of Management**, delivered a talk on "Project Management" at SP Jain Institute of Management and Research, New Delhi during November 13-14, 2021. He delivered six talks on "Analytics for Marketing and Retail" during the Faculty Development Program on Marketing Analytics organized by the Department of Management, BITS Pilani in collaboration with ATAL Academy during December 13-17, 2021. He also delivered a talk on "Microsoft XL and Tally for a successful career" at Kotak Education Foundation, Mumbai on December 27, 2021.

**Prof Trilok Mathur, Department of Mathematics**, delivered an online talk on "Applications of Fractional Calculus in Mathematical Modelling" in FDP entitled "Recent Developments in Mathematics and Their Applications" at JEC Kukas, Jaipur during August 12-14, 2021. He delivered an online talk on "Introduction to some basic models of Data Envelopment Analysis (DEA) and their applications" at International Conference on Advances in Applied and Computational Mathematics (ICAACM-2021) organized by Manipal University, Jaipur during September 16-17, 2021. He also delivered an online talk on "Riemann Zeta Function" at Poornima Institute of Engineering & Technology, Jaipur in National Mathematics Day Celebration on December 22, 2021.

**Prof Shilpi Agarwal, Department of Mathematics**, delivered an online talk on "Introduction of Some Basic Models of DEA and Applications" in FDP entitled "Recent Developments in Mathematics and Their Applications" at JEC Kukas, Jaipur during August 12-14, 2021. She delivered two talks on "CCR/BCC DEA Models" and "SBM and New Slack-based Models" in ICSSR Research Methodology Workshop on "Econometric Methods for Economic and Business Research" in the Department of Humanities and Social Sciences, IIT Roorkee organized during December 1-10, 2021. She also delivered an online talk on "Mathematical Background of Neural Networks" in a webinar at University Centre for Computer Science and Information Technology, University of Rajasthan, Jaipur on December 23, 2021.

**Dr Rahul Arora, Department of Economics & Finance**, delivered a session, as a resource person, on the topic "Granger Causality: Theory and Applications" on December 30, 2021 at Virtual AICTE-ATAL Sponsored FDP on Econometric Techniques for Social Sciences, organized by Central University of Punjab, Bathinda, India during December 27-31, 2021.

## Accolades and Achievements: Academic attainments of faculty

**Prof Kamalesh Kumar, Department of Civil Engineering**, was honored with a certificate of excellence in recognition to an outstanding contribution toward the quality of the Journal of Economics, Management and Trade. He was also awarded with the Best Researcher Award in the International Scientist Awards on Engineering, Science and Medicine, Trivandrum, India, organized by VDGOD professional association during August 28-29, 2021.

**Prof Arya Kumar, Department of Economics and Finance**, was a jury member for final pitches on Business Plans for the International Entrepreneurship Summer School hosted by TU Braunschweig and Ostfalia University of Applied Sciences at their joint Entrepreneurship Hub on September 13, 2021.

**Prof Manoj Kumar Soni, Department of Mechanical Engineering**, was a jury member of the 9<sup>th</sup> Manufacturing Today Conference and Awards 2021, organized by Aditya Birla Group along with Manufacturing Today and LOCTITE, on September 17, 2021. He was also a jury member of 4th VDMA Manufacturing Excellence Award (Energy Efficiency & Conservation - Large Category) at the 10<sup>th</sup> VDMA Mechanical Engineering Summit organized by VDMA India, the India office of The German Engineering Federation (VDMA), on October 8, 2021.

Prof. Manoj Kumar Soni



**Dr Gautam Singhvi, Department of Pharmacy**, was listed in the "World Ranking of Top 2% Scientists" in 2021 database created by experts at Stanford University, USA, published in the Journal of PLOS Biology on October 19, 2021.

**Prof S.B. Singh, Department of Civil Engineering**, was invited by Deepali Designs and Exhibition to develop design for FRP shelters in High Altitude Areas for Defense Sectors. He has been nominated as an Expert member for Developing FRP shelters for High Altitude Areas for Defence needs by CCE (R&D), DRDO, Ministry of Defense on October 25, 2021. Prof. Singh has also been selected a Fellow of American Society of Civil Engineers on December 11, 2021.

**Prof Atish T. Paul, Department of Pharmacy & his research group** was conferred the "Dr. P.D. Sethi Memorial National Award 2020" on October 22, 2021 in the category of best research paper titled "Optimisation of extraction conditions for Rumex nepalensis anthraquinones and its correlation with pancreatic lipase inhibitory activity" published in the Journal of Food Composition and Analysis.

**Dr Vinay Chamola, Department of Electrical and Electronics Engineering**, was elected as an Area Editor of IEEE Internet of Things Magazine, and the Associate Editor of IEEE Networking Letters.

## Distinguished Online Lectures at Pilani Campus

**Dr Kaushik Saha, Center for Energy Studies, Indian Institute of Technology, Delhi**, delivered a lecture on "Utilization of High-Performance Computing for Internal Combustion Engines" at the Department of Chemical Engineering on August 28, 2021.

**Er Prashant Sathe, Technical Expert Regulations, Hilti (India) Private Limited**, delivered a lecture on "An Overview of Post-installed Fastening Systems for Use in Concrete as per Current Standards" at the Department of Civil Engineering on August 28, 2021.

**Dr Saurav Goel, London South Bank University, UK**, delivered a lecture on "Overview of manufacturing research" at Department of Mechanical Engineering on September 3, 2021.

**Prof James Sprittles, University of Warwick, UK**, delivered a lecture on "Droplet dynamics in the presence of gas nanofilms: merging, wetting, bouncing & levitation" at the Department of Mathematics on September 11, 2021.

**Prof Lorenzo Tamellini, Institute for Applied Maths & Information Technology, Pavia, Italy**, delivered a lecture on "Forward and inverse uncertainty quantification for PDE/ODE with random coefficients" at the Department of Mathematics on September 11, 2021.

**Prof Ravi S. Srivastava, IHD, New Delhi**, delivered a lecture on "Understanding the Genesis of Migration Crisis in India" at the Department of Economics & Finance on September 11, 2021.

**Prof James D. Proctor, Lewis & Clark College, USA**, delivered a lecture on "The New Ecotypes" at the Department of Humanities and Social Sciences on September 14, 2021.

**Prof Amit Shaw, Indian Institute of Technology, Kharagpur**, delivered a lecture on "Potential of natural and waste materials in various structural applications" at the Department of Civil Engineering on September 18, 2021.

**Prof Alessandra Adrover, University of Rome, Italy**, delivered a lecture on "Laminar dispersion in microfluidic systems with an application to micro capillary hydrodynamic chromatography" at the Department of Mathematics on September 18, 2021.

**Prof Debasish Bandyopadhyay, Jadavpur university**, delivered a lecture on "Study on an alternative affordable building system for sustainable construction" at the Department of Civil Engineering on September 18, 2021.

**Dr Suyash Garg, Jaipur Metro Rail Corporation Limited**, delivered a lecture on "Construction of Metro Phase-1B in the Heritage City of Jaipur" at the Department of Civil Engineering on September 18, 2021.

**Prof Rahul Dev Garg, Indian Institute of Technology, Roorkee**, delivered a lecture on "Recent Trends in Geomatics Engineering" at the Department of Civil Engineering on September 18, 2021.

**Prof Mahesh Jat, MNIT Jaipur**, delivered a lecture on "Land use land cover changes and its implication on climate: Possible adaptation and mitigation options" at the Department of Civil Engineering on September 18, 2021.

**Dr Sonny Sachdeva, Principal Safety Engineer, Process Safety & Reliability Group (PSRG), Texas, USA**, delivered a lecture on "Understanding the importance of Dust Hazards – Prevention and Mitigation" at the Department of Chemical Engineering on September 24, 2021.

**Prof Cockburn B, University of Minnesota**, delivered a lecture on "Hybridizable discontinuous Galerkin method" at the Department of Mathematics on September 25, 2021.

**Prof Lekha Chakraborty, NIPFP, New Delhi**, delivered a talk on "Fiscal Policy Response to Covid-19 Pandemic in India" at the Department of Economics & Finance on September 25, 2021.

**Mr Sushim Srivasta, Senior Director Engineering, Qualcomm India, Hyderabad**, delivered a lecture on "Enabling the Rise of the Smartphone" at the Department of Electrical and Electronics Engineering on September 27, 2021.

**Dr Susmita Bhattacharya, Department of Aerospace Engineering, Indian Institute of Technology, Kharagpur**, delivered a guest lecture on "Reliable Estimation Algorithms for Aircraft Navigation" at the Department of Electrical and Electronics Engineering on September 28, 2021.

**Dr Chih-ming Wang, Academia Sinica, Taiwan; Harvard Yenching Institute, USA**, delivered a lecture on "Unpacking the Nation in/as the State of Crisis: A Transnational Reflection on the Impact of the Pandemic in Taiwan" at the Department of Humanities and Social Sciences on September 28, 2021.

**Dr Architesh Panda, United Nations University (UNU), Bonn, Germany**, delivered a lecture on "Climate Change and Disasters Risks: Rethinking Crisis Financing in India" at the Department of Economics & Finance on October 2, 2021.

**Prof Sudhakar Umale, Prof and Head, Mechanical Engineering Department, SPCOE, Andheri (W), Mumbai**, delivered a lecture on "Vehicle Performance Analysis, Comparison of Powertrain of Electric /Combustion Vehicle and BMS" at the Department of Mechanical Engineering on October 5, 2021.

**Prof Michael Payne, La Trobe University, Australia**, delivered a lecture on "Minimal interconnection trees in computational geometry" at the Department of Mathematics on October 9, 2021.

**Prof R. Nagraj, CDS, Trivandrum, Kerala**, delivered a talk on "National Monetisation Pipeline: Why is it unlikely to boost infrastructure investment?" at the Department of Economics & Finance on October 9, 2021.

**Prof Natalia Rozhkova, Head of the laboratory of Physical chemical study of Nanomaterials, Institute of Geology, Karelian Research Center RAS, Russia**, delivered a lecture on "Physico-chemical aspects in controlling properties of natural graphene-like nanocarbon in multifunctional materials" at the Department of Chemical Engineering on October, 14, 2021.

**Prof Eun Park, Yonsei University South Korea**, delivered a lecture on "Staggered discontinuous Galerkin method on polygonal meshes" at the Department of Mathematics on October 16, 2021.

**Prof Robert (Bob) Pego, Carnegie Mellon University, USA**, delivered a lecture on "Dynamics and oscillations in models of coagulation and fragmentation" at the Department of Mathematics on October 23, 2021.

**Prof Guhan Jayaraman, Department of Biotechnology, Indian Institute of Technology, Madras**, delivered a lecture on "Applications of Synthetic Biology In Metabolic Engineering: A Case study on the production of controlled molecular weight biopolymers", at the Department of Biological Sciences on October 23, 2021.

**Dr Ratna Chaturvedi, Research Scientist, Department of Neurobiology, UMASS Medical School, USA**, delivered a lecture on "Sleep modulation by glial transporters in Drosophila", at the Department of Biological Sciences on October 23, 2021.

**Ms Snigdha Srivastava, Assistant Manager, Intercontinental Consultants & Technocrats Private Limited, New Delhi**, delivered a lecture on "Exploring AutoCAD and Revit software" at the Department of Civil Engineering on November 2, 2021.

**Prof Stefan Kindermann, Johannes Kepler University Linz, Austria**, delivered a lecture on "Regularization of inverse problems and heuristic parameter choice rules" at the Department of Mathematics on November 6, 2021.

<b>Prof Anatoly Filippov, Gubkin University, Moscow, Russia</b> , delivered a lecture on "The cell model of ion-exchange membranes: theory and experiments" at the Department of Mathematics on November 6, 2021.
<b>Mr Vikalp Gupta and Mr. Raj Panchmatiya</b> , delivered a lecture on "Exploring STAAD PRO (emphasis on Concrete and Steel structures)" at the Department of Civil Engineering on November 10, 2021.
<b>Dr Arjun Singh, NIH-NCATS, USA</b> , delivered a lecture on "The Mathematical model of neurite outgrowth" at the Department of Mathematics on November 13, 2021.
<b>Prof Jose Silva, Adjunct Professor, Escola Superior de Tecnologia e Gestão, Instituto Politécnico de Bragança, Campus de Santa Apolonia, Portugal</b> , delivered a lecture on "Methodology of Gas Adsorption Process Design: Application to CO <sub>2</sub> Capture and Biogas Upgrading" at the Department of Chemical Engineering on November 17, 2021.
<b>Dr Maggie Charles, Oxford University</b> , delivered a lecture on "Academic Writing for Higher Degree Students" at the Department of Humanities and Social Sciences on November 25, 2021.
<b>Mr Pranay Kumar, Portfolio Manager, Private PPCM, Mott MacDonald</b> , delivered a lecture on "Construction Management - Site Practices" at the Department of Civil Engineering on November 26, 2021.
<b>Mr Swapnil Wakodkar, Discipline Lead, Civil, Structure, and Architecture, Mott MacDonald</b> , delivered a lecture on "Construction Management - Project Development Stages" at the Department of Civil Engineering on November 26, 2021.
<b>Ms Sangita Mehta, Principal Engineer, Civil, Structure, Mott MacDonald</b> , delivered a lecture on "Construction Management - Project Development Stages" at Department of Civil Engineering on November 26, 2021.
<b>Dr James D. Frankel, Director, Centre for the Study of Islamic Culture, Associate Professor, Department of Cultural and Religious Studies, The Chinese University of Hong Kong</b> , delivered a lecture on "Origins and Trajectories of Islam in China." at the Department of Humanities and Social Sciences on November 30, 2021.
<b>Mr Shyamal Kumar, Founder and CEO, Lavelle Networks</b> , delivered a talk on "Sustainable Business Models" at the Department of Mechanical Engineering on November 30, 2021.
<b>Dr P. K. Jain, Associate Director, Frequency Management and SatCom Planning, ISRO, Department of Space, Govt. of India</b> , delivered a lecture on "Advances in Satellite Communication" at the Department of Electrical and Electronics Engineering on December 3, 2021.
<b>Dr Naciba Chassagnon, ESSCA School of Management, Lyon, France</b> , delivered a lecture on "Environmental Studies for the 21st century" at the Department of Humanities and Social Sciences on December 3, 2021.
<b>Prof Umesh Garg, a BITS Alumni Distinguished Awardee</b> , delivered a talk on "From Heavens to Earth, the Little Nucleus Reigns Supreme" at the Department of Physics on December 4, 2021.
<b>Dr Shusaku Asano, Assistant Professor, Institute for Materials Chemistry and Engineering, Kyushu University, Japan</b> , delivered a lecture on "Microflow technologies for controlling fast chemical reactions: from fundamentals of mass and heat transfer to large-scale productions" at the Department of Chemical Engineering on December 4, 2021.
<b>Prof Surajit Dhara, S S Bhatnagar awardee in 2020</b> , delivered a lecture on "Playing with faults in flowable crystals" at the Department of Physics on December 10, 2021.
<b>Prof Walter A. Rosenbaum, Dept. of Political Science, University of Florida, USA</b> , delivered a lecture on "Grow Where You're Planted: Bringing Sustainability to the Campus" at the Department of Humanities and Social Sciences on December 10, 2021.
<b>Prof Nitin Saxena, Indian Institute of Technology, Kanpur</b> , delivered a lecture on "A Non-Turing Model of Computation" at the Department of Mathematics on December 22, 2021.

## Significant projects

Principal Investigator and Name of the Department	Project Title	Agency	Amount & Duration
Dr Shashank Gupta Department of Computer Science and Information Systems	A Secure Vision-based Driver Support System for Internet of Vehicles (IoV) with Object Detection Technique and Optimal RSUs Deployment	ARTPARK Grant (IISc)	3,86,000.00 12 Months
Dr Yashvardhan Sharma Department of Computer Science and Information Systems	Designing Optimal and Targeted Advertisement Campaign Strategy for Online E-Commerce Platforms using AI and Machine Learning	CommerceIQ (iBoomerang Retail Commerce Technologies India Private Limited)	36,27,000.00 36 Months
Dr Gaurav Nagpal Department of Management	Five-Day Faculty Development Program on "Analytics for Marketing and Retail"	ATAL Academy	93,000.00 5 Days
Dr Vinay Chamola Department of Electrical and Electronics Engineering	Artificial Intelligence and Blockchain Enabled Secure and Scalable Framework for Online Healthcare Applications	DST-ASEAN Collaborative R&D	32,70,000.00 24 Months
Dr Vinay Chamola Department of Electrical and Electronics Engineering	MedSupervision- A Healthcare start-up	Start-up Incubation Grant (PIEDS)	7,00,000.00 12 Months
Dr Vinay Chamola Department of Electrical and Electronics Engineering	Development of a reliable real-time FPGA based object detection solution for autonomous vehicles	ARTPARK Grant (IISc)	3,80,000.00 8 Months
Dr Chennu Ranganayakulu Department of Mechanical Engineering	Technical Guidance to Rangsons Thermal Management Projects	M/s Rangsons Aerospace Pvt Ltd, Bangalore	7,08,000.00 12 Months
Dr S. S. Vasan (CSIRO) Department of Pharmacy	The System initiative: Systems biology augmented, stem cell-derived, multi tissue panel for rapid screening of drugs as potential COVID-19 treatments	Common Wealth Scientific and Industrial Research Organization	10,84,933.00 12 Months
Dr Sandeep Joshi Department of Electrical and Electronics Engineering	Rendering Software Consultancy Services for 5G Cellular OTA Scanner to Hughes' office in Gurgaon	Hughes Sistique (P) Limited	10,88,475.00 6 Months
Dr Sumanta Pasan Department of Mathematics	Contemporary Earthquake Potential Analysis along the Central and Nepal Himalaya	Center for Sustainability Science, Academia Sinica, Taiwan	10,93,500.00 24 Months
Dr Tanmay Banerjee Department of Chemistry	Organic Polymers for Photocatalytic Nitrogen Fixation	SERB	1,19,00,000.00 60 Months
Dr Rajeev Taliyan Department of Pharmacy	Sertraline intervention for enhancing anti-TB therapeutic regimen (SINERG)	CSIR-IGIB	6,00,000.00 36 Months
Dr Ajit Pratap Singh Department of Civil Engineering	Preparation of District Environmental Plan (DEMP), Dist Jhunjhunu	Department of Environment (Rajasthan Govt.)	9,00,000.00
Dr Rajesh Kumar Department of Computer Science and Information Systems	Predictor and Analyzer of Security Threats: A model based risk analysis framework for critical interconnected infrastructure	C3IHUB (IIT Kanpur)	18,14,000.00 36 Months
Dr Suvanjan Bhattacharyya Department of Mechanical Engineering	Performance improvement of Solar thermal system using magnetic NanoFluids	DST	42,56,588.00 36 Months
Dr Madhushree Sarkar Department of Chemistry	Design and synthesis of coordination polymers conduction	CSIR	17,14,000.00 36 Months
Dr Chennu Ranganayakulu Department of Mechanical Engineering	Specific Generation and system identification of environmental control system based on requirement analysis and system modelling	DRDO	22,33,500.00 18 Months
Dr A.K. Das (Coordinator) Department of Biological Sciences	DBT-BUILDER -University of Birla Institute of Technology and Science Pilani, Pilani Campus Interdisciplinary Life Science Programme for Advanced Research and Education in Epigenetics and Genome editing	DBT	9,01,80,320.00 60 Months

Principal Investigator and Name of the Department	Project Title	Agency	Amount & Duration
Dr M. S. Dasgupta Department of Mechanical Engineering	Development of smart integrated energy system for supermarkets and medium to large size office building in India, named "INDEE+."	The Royal Norwegian Embassy in New Delhi	78,00,000.00 36 Months
Dr Rajeev Sahuja Department of Chemistry	Enriching Unnatural Amino Acids (UAs) Toolkit via Transition-metal Catalyzed Site Selective Functionalization/Annulation of Distal C(sp <sup>2</sup> )-H bonds	SERB	38,32,400.00 36 Months
Dr Somak Chatterjee Department of Chemical Engineering	Application of co-axial electrospun novel composite nanofiber membranes towards specific and efficient removal of arsenic, lead and fluoride from groundwater	SERB	27,48,900.00 24 Months
Dr Mukul Joshi Department of Biological Sciences	Root system architecture and root-omics during drought and thermotolerance in <i>Prosopis cineraria</i> , a promising plant of desert	SERB	29,06,675.00 24 Months
Dr Tribeni Roy Department of Mechanical Engineering	Nature inspired high energy density supercapacitors (NATURECAP)	SERB	35,17,830.00 24 Months
Dr Pratik Narang Department of Computer Science and Information Systems	AI-enabled drone-based remote health assessment of PMGSY roads	NRIDA	17,58,000.00 24 Months
Dr Sarbani Ghosh Department of Chemical Engineering	Hybrid Gas Sensors Based on p-Type/n-Type Conducting Polymers	SERB	33,00,000.00 24 Months
Dr Rita Sharma Department of Biological Sciences	Identification and characterization of male meiocyte-specific promoters to facilitate germline-specific engineering in sorghum	SERB	43,00,912.00 36 Months
Dr Sarah Manam Abraham Department of Civil Engineering	Assessing the potential of Reclaimed Asphalt Pavement (RAP) aggregate inclusive concrete mixtures as a viable engineered carbon sink in rigid pavements	SERB	18,35,590.00 24 Months
Dr Sayantan Chakraborty Department of Civil Engineering	Mitigating Ettringite-Induced Heaving in Sulfate-Laden Soils Using Quarry Dust as Co-Additive with Calcium-Based Stabilizers	SERB	16,67,600.00 24 Months
Dr Anirudh Singh Rana Department of Mathematics	Simulation of evaporation and condensation processes in nanodevices: development of an efficient numerical framework using mesh-free methods	SERB	12,91,950.00 24 Months
Dr Saumi Ray Department of Chemistry	Catalysis Involving Metal Complexes Encaged in Meso- and Microporous Materials for Upcycling of Carbon Dioxide into Useful Chemicals	SERB	29,19,400.00 36 Months
Dr Sandeep Joshi Department of Electrical and Electronics Engineering	Intelligent Reflecting Surface (IRS) Assisted 5G and Beyond Communications: Modeling, Design, and Analysis	SERB	30,84,400.00 24 Months
Dr Divyum Sharma Department of Mathematics	The distribution of the sum-of-digits function in algebraic number fields	SERB	14,84,410.00 24 Months
Dr Arnab Hazra Department of Electrical and Electronics Engineering	Multiple Nano-filaments Based Resistive Switching Memories on Flexible Substrate: Implemented by Self-assembled doped metal oxides/perovskites	SERB	38,21,400.00 36 Months
Dr Sandeep Sundriyal Department of Pharmacy	Design and synthesis of inhibitors of mycobacterium tuberculosis sigma factor RNAP protein-protein interaction as potential antimycobacterial agents"	ICMR	26,13,812.00 36 Months
Dr L. Rajya Lakshmi Department of Computer Science and Information Systems	QoS Provisioning framework for IoT network using fog-computing and UAVs	SERB	19,42,600.00 24 Months

# Student round up

## National Service Scheme (NSS), BITS Pilani

NSS BITS Pilani comprises of enthusiastic and dedicated volunteers guided by esteemed professors to help them build sustainable and comprehensive models for the betterment of people in Pilani and nearby villages including Baas, Harinagar, Garinda, Ghumansar, Jherli,

and Rayla. It aims to inculcate a spirit of service in the volunteers so that they become responsible citizens dedicated to the improvement of our nation and the world at large in every aspect. NSS organized the following events:

### Plantation Drive

NSS BITS Pilani conducted a tree plantation drive on October 15, 2021 wherein 50 saplings of crape Jasmine were planted at the sewage treatment plant and Vyas Bhavan. The support staff and gardeners of the Horticulture Department of BITS Pilani made the

arrangements for the plantation drive. Prof Sudhirkumar Barai, Director, Pilani campus, was the chief guest and the program officers attended the event. The purpose of the drive was to create awareness about the importance of trees in battling climate change and global warming.



### Health Camp in Hanumantpura

NSS organized a health camp on November 28, 2021, in the Government School of Hanumantpura, Pilani with massive participation of more than 65 patients. Dr. Guru Prasad Burnwal, Chief Medical Officer, BITS Pilani,

volunteered for the camp and made it a great success. A complete checkup was administered, including blood pressure, blood sugar test, and BMI. Medicines were also made available free-of-cost to the patients, as required.



### Old Notebook Collection Drive

As the campus re-opened for the 2018 and 2019 batches, NSS set up an Old Notebook Collection drive. Old notebooks, newspapers, books and other waste papers were collected in an orderly fashion. The volunteers collected close to 40 sacks of waste papers. In exchange of the collected material, NSS received brand new stationery, which was later distributed to students of NSS School. Phase-I of the drive took place during October 7-17, 2021, and Phase-II was conducted toward the end of the semester starting from December 26, 2021.

## Nirmaan Vaccination Camp

Nirmaan, a voluntary organization initiated by BITS, Pilani students in 2005, works in the areas of education, livelihoods and social leadership. Nirmaan conducted vaccination drives on September 29, 2021 in Nat Basti and Khelda Bass. The first vaccination camp was organised with the help of the Government of Rajasthan that provided awareness and transportation facilities to all the beneficiaries. The second vaccination camp was organised by PHC, Pilani, at Nirmaan's old Unnati centre. The vaccination drives saw over 100 vaccinations.

### Nirmaan Vaccination Camp



## BITS Premier League (BPL)

BITS Premier League (BPL), the sports event of BITS Pilani, was conducted by the Sports Union, from November 19, 2021 to November 28, 2021. The event was inaugurated by Prof Souvik Bhattacharyya, Vice-Chancellor, BITS Pilani and Prof Sudhirkumar Barai, Director, Pilani Campus and continued under the guidance of Prof Srikanta Routroy, Associate Dean SWD, Pilani Campus and Prof Navin Singh, Chief Warden, Pilani Campus. The Sports Staff ensured the players proper availability of sports equipment and playing environment. Medical support helped players give their best on the field, and quick medical assistance was provided as required. Refreshments from time to time were provided to players with the help of hostel staff. Medals and trophies were distributed to the position holders, best players in various categories and the emerging players.

An astounding 1650+ players were registered in the inaugural BPL in numerous sports events. The faculty also participated in multiple events as well and showed the utmost level of sportsmanship. BPL turned out to be a success and was completed with all necessary precautions

and covid guidelines. The following indoor and outdoor events were conducted:

**Athletics:** Athletic events were conducted in 100m, 200m, 400m and 800m in two categories, boys and girls. Some impressive sprints and endurance levels were the main highlights.

**Badminton:** Badminton event saw colossal participation, and the winners - Walkover, won the final in a stirring match against opponents Racquet Ninja and grabbed the Gold Medal. The mixed event saw The Titans as the winner while Team Best Shot defeated Team Vibha-Shalini to win the girls event.

**Basketball:** The Basketball tournament saw some fantastic matches, with two of them consisting of scores in three digits. Numerous games with final scores differing by just two to three points indicate the cut throat competition. In the boy's category, Ultra mild stood victorious in the final match against The Mob. The HERd declared the winners courtesy of their dominant performance over DANSE and Ballers in the girl's category by 19-10 and 8-4, respectively.

**Carrom:** The final events of carrom saw some fantastic statistics. The first single between Bitu and Keshav ended with Keshav winning 1- 21. The 2nd single between Akash and Rituj saw Rituj emerging as the event's champion with a net score of 12 - 21. In the doubles, Team Insiders won in the tiebreaker board 4-0.

**Chess:** After a league and knockout matches, Patzers and Genius Minds were the two finalist teams. Drawing the game with a 2-2 score, the game went into a tiebreaker round. Patzers came out victorious by winning the second tiebreaker after a draw in the first tiebreaker.

**Cricket:** The Cricket tournament concluded with G7 winning the final from Group-A in a close match. The winner was eventually decided by the boundary count rule and Lagaan from Group-B. Group A had 32 teams of BITSians who played on the first day of BPL, and Group B consisted of 3 faculty teams and runners-up of Group A matches.

BITS Premier League (BPL)



**Pool:** After a long run in the league and knockout stages, Tejas Jain bagged the first position, and Suyash Jain finished in the second spot.

**Squash:** Squash witnessed significant participation from students' side. The final saw Anshul Rawtani winning against Ashwin Kothari with a net score of 3-1. It was an intense 4-set match on the last day of BPL. Anshul dominated the first set while Ashwin exhibited his skills in the second. The third and fourth sets were won by Anshul by a score of 11-8 each.

**Table tennis:** In an exciting final between Ashwin and Ryan in the Men's Table Tennis event, Ashwin held on to his nerves to clinch the top spot. In a closely contested final match, Ashwin won by a 3-1.

**Tennis:** The faculty participants had the upper hand in the final results of the Tennis event. Some incredible rallies with

brilliant forehand and backhand returns kept the momentum going for excellent matches in both boys and girls events. The men's singles' finals were in favor of Prof Krishnendra Shekhawat, who won over Rahul Palit by a 7-3 score. The Soumya-Aditya team defeated the Jitender-Ajay team 6-3 to grab the top spot in the men's doubles category. The girls singles final saw impressive rallies between Sneha Sanjiv Patil and Annika Garg. Sneha won the match with a net score of 5-2.

**Volleyball:** In Volleyball, the faculty teams stood apart and dominated the event. Both finalists were from the faculty side. Faculty 2 team won the contest in what turned out to be a very close match. Rolling Thunders emerged as gold medal winners in the girls' category league after defeating SMASHERS by 2-1 in the finals. Third position was bagged by Sneak Attack, who defeated Pop Up Blockers 2-0 in the third place match.

## Students' Achievements

**Debjani Ghosh (2020H1120263P), Department of Computer Science and Information Systems**, received 'ARTPARK Student Innovation Grant' from Indian Institute of Science, Bangalore on August 18, 2021.

**Ashwin Sathish Kumar (2020B4A80893P), Department of Mathematics**, received the "Inspire Scholarship" of Rs. 80,000 (Rs.20,000 towards research expenses) awarded annually on the basis of university grades and other academic factors from Department of Science and Technology, Government of India, on August 25, 2021.

**Yugal Joshi (2020A7PS0002P), Department of Computer Science and Information Systems**, won 'Avery Dennison Invent Awards' during the event organized by Avery Dennison, Goode Ave Glendale, CA, USA. The facilitation ceremony was held during August 24-26, 2021.

**Ankit Sonthalia (2017B4A70468P), Department of Mathematics**, was offered fully funded off-campus thesis at the German Research Centre for Artificial Intelligence (DFKI) on September 9, 2021. His thesis will be supervised by Prof Didier Stricker, one of the leading names, in the AI space of Germany and Europe.

**Sparsh Agarwal (2018B4PS0936P), Department of Mathematics**, published a paper on the topic "Fish Lateral Inspired pressure sensing neural networks for underwater object identification" by IEEE Oceanic Society on September 18, 2021.

**Nikita Saxena (2018B5A70940P), Department of Computer Science and Information Systems**, was awarded the 'DAAD-WISE Scholarship' by DAAD (German Academic Exchange Service) New Delhi for a project running from August 2021 - September 2021.

**Amarpal Singh Basra (2019B4A80336P), Department of Mathematics**, received the "Inspire Scholarship" of Rs. 60,000 from the Department of Science and Technology, Government of India on October 15, 2021.

**Sunidhi Garg (2018B4PS0864P), Department of Mathematics**, co-authored a paper on the topic "Machine-Learning-Enabled Prediction of Adiabatic Temperature Change in Lead-Free BaTiO<sub>3</sub>-Based Electrocaloric Ceramics" published by American Chemical Society (ACS) Applied Materials & Interfaces in October 2021.

**Sarthak Aggarwal (2021A8PS1143P)**, secured first position in "Loblaw Amplify Tech Challenge 2" in Hack the Valley 5, organized by University of Toronto during October 15-17, 2021. He was also awarded with "Best Community Hack" in HackNITR 3.0 organized by NIT Rourkela during October 29-31, 2021.

**Anshh Seksaria (2020A1PS1472P)**, Department of Chemical Engineering, was awarded the AIChE freshman recognition award on November 7, 2021.

**Rishabh Barnwal (2020A7PS1677P)**, Department of Computer Science and Information Systems, won the award 'Light It Up by PiXXel' and Secured first position at the event held at Indian Institute of Technology Patna on November 17, 2021.

**Esha Pahwa (2018B2A70675P)**, Department of Computer Science and Information Systems, was awarded 'Adobe WIT Scholarship 2022', by Adobe, Bengaluru on November 22, 2021.

**Rohan Marwah (2017B4A10840P)**, Department of Mathematics, published a paper on "Application of Empirical orthogonal function on Geodetic time series data". The paper was presented in InGARSS 2021 conference on December 08, 2021.

**Aitijhya Mondal (2021B3PS0943P)** team lead and **Manas Kalra (2021A3PS2394P)**'s team Celestine secured the second position on Space Quiz organized by National Students' Space Challenge, IIT Kharagpur during December 10-12, 2021.

**Advik Singh (2020A2PS1735P)**, Department of Civil Engineering, was awarded with George H.W. Bush Points of Light Inspiration Honouree in August 2021. Established in recognition of the 41st President of the United States, George H.W. Bush, the honour roll recognises individuals who demonstrate transformative power of service, and who are driving significant and sustained impact through their everyday actions. Advik was recognised for impacting 8000+ lives through his non-profit organisation, Chhalaang Foundation. Advik was also awarded with OP Jindal Engineering and Management Scholarship (OPJEMS) in November 2021, which is awarded to 100 students across the country on the basis of their academic performance, business aptitude and leadership potential.

**Rohit K Bharadwaj (2017B4A70633P)**, Department of Mathematics, co-authored a publication with R. Bharadwaj, G. Jaswal, A. Nigam and K. Tiwari "Mobile based human identification using forehead creases: application and assessment under COVID-19 masked face scenarios." This paper was presented on IEEE Winter Conference on Applications of Computer Vision (WACV), 2022 on December 31, 2021. He also co-authored a publication with G. Arora, R. K. Bharadwaj and K. Tiwari on "Deepteeth: A teeth-photo based human authentication system for mobile and hand-held devices". He co-authored a publication with Jaswal, G., Bharadwaj, R., Tiwari, K., Thapar, D., Goyal, P., & Nigam, A. on "AI-biometric-driven smartphone app for strict Post-COVID Home Quarantine Management" in IEEE Consumer Electronics Magazine on December 31, 2021.

## Introducing new faculty

S.No.	Name	Designation	Department
1	Paramita Dutta	Assistant Professor, Gr-I	Physics
2	Selva Balaji M	Assistant Professor, Gr-I	Civil Engineering
3	Tejasvi Alladi	Assistant Professor, Gr-I	Computer Science & Information System

## Editorial team

### Editor:



**Dr Anupam Yadav**  
Humanities and Social Sciences

### Student Members:



**Ankita Upadhyay**  
2021H1540803P



**Sayantan Paul**  
2021H1540807P

### Special Thanks



**Prof Gajendra Singh Chauhan**  
Faculty In-charge,  
Publications and Media Relations



**Mr. Ramesh Sharma**  
Publications and Media Relations

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इनोवेशन व इनक्यूबेशन सेंटर से  
उद्यमशीलता को मिलेगा बढ़ावा।

दैनिक भास्कर, 01 दिसम्बर, 2021  
संकाय विकास कार्यक्रम की शुरुआत

मुद्रित पत्रिका, 26 नवम्बर, 2021  
बिट्स पिलानी को विज्ञान और प्रौद्योगिकी विभाग,  
भारत सरकार द्वारा गति प्रोजेक्ट के लिए चुना गया

पिलानी में निजी क्षेत्र का पहला ऑक्सीजन  
प्लांट शुरू, रोज हजार लीटर का उत्पादन होगा

