

Semester - II notes 2021-22

# bitscan

K K Birla Goa Campus



**BITS** Pilani  
K K Birla Goa Campus



# from the editor

Dear Readers,

We are pleased to present to you the 25<sup>th</sup> Issue of BITSCAN magazine. We are back to normalcy. Students are back to campus and attend classes, labs, etc. in an offline mode.

We welcomed Prof. Suman Kundu as the Director of K K Birla Goa Campus in April. Prof. Kundu has served as Director of the South Campus, Director of the Centre for India-Canada Studies, and Acting Pro Vice-Chancellor at the University of Delhi. During this semester too, BITS BIRAC BioNEST continued with some very interesting series of activities – some held in hybrid mode.

The silver lining is that it was ranked 4<sup>th</sup> in the list of life sciences incubators in the private incubators category in the survey conducted by BioSpectrum India, a leading B2B media platform in Life Sciences. IPCD hosted three international delegations in this semester – KTH Royal Institute of Technology, Sweden, University of Nottingham, UK; and officials of French Embassy in India. The fruitful discussions are going in the right direction in achieving tangible and intangible objectives of the collaboration.

In addition to fulfilling teaching and research assignments, our faculty members were engaged in various initiatives including delivering invited lectures and conducting workshops at other institutions, presenting papers on their latest research at national and international events.

Many faculty members are appointed on editorial boards and to review reputed international and national journals. 22 very significant research projects worth over Rs. 5 crores were sanctioned for various departments by government and non-government agencies during this semester. Similarly, many eminent speakers from India and abroad delivered lectures / webinars for our students and faculty members.

Our students continue to win accolades in India as well as abroad and make us proud. Team of Project Kratos which aspires to develop a Mars Rovers equipped with advanced subsystems suitable for interplanetary deep space missions secured the topmost position among the Indian competitors, ranked 2<sup>nd</sup> in Asia and finished 21<sup>st</sup> worldwide in URC 2022. Project Kratos further also secured a worldwide rank of 2<sup>nd</sup> and stood 1<sup>st</sup> in Asia in the finals of the Anatolian Rover Challenge (ARC) held in Istanbul, Turkey in July 2022.

From securing scholarships of national and international institutions, to winning reputed competitions, from participating and winning significant hackathons, to winning some very prestigious paper presentation awards, sports, quiz and essay competitions, students are shinning and making their alma mater proud of their achievements. We thank the entire BITS community for their contributions and support in bringing out this issue of BITSCAN.

# Profile of Prof. Suman Kundu



Prof. Kundu has served as Director of the South Campus, Director of the Centre for India-Canada Studies, and Acting Pro Vice-Chancellor at the University of Delhi.

Prof. Kundu obtained his Ph.D. from Banaras Hindu University (1999), was a post-doctoral fellow at Iowa State University, USA, and a Research Associate at Pioneer Hi-Bred, Dupont, USA. He was a Lecturer in the School of Biotechnology, BHU (2006) before moving to the Department of Biochemistry at the University of Delhi as a Reader (2006), where he was subsequently promoted to Associate Professor (2009) and Professor (2012).

He was honored with The Indo-US Research Fellowship (2010) and The S.P. Tyagi Oration Award (2017). Prof. Kundu was inducted as an Elected Fellow of The Indian Academy of Biomedical Sciences in 2021. He has published over 75 research papers and 3 book chapters; he has 1 patent to his credit and is an applicant for 5 others.

Prof. Kundu has supervised several Ph.D., M.Phil. and M.Sc. theses and delivered numerous talks in India and abroad.

His research interest focuses on structure-function-stability relationship in blood substitutes; his laboratory is actively involved in engineering heme and polypeptide stability in recombinant hemoglobin for application as hemoglobin-based oxygen carrier.

His group is also engaged in understanding the pathophysiology of sickle cell disease using metabolomics and proteomics approaches and is attempting to decipher effective therapeutics to combat the debilitating disease. Currently, the laboratory is dedicated towards structure-aided drug discovery initiatives to identify novel small molecules to treat cardiovascular diseases and rheumatoid arthritis.

He is the Founder Editor-in-Chief of Journal of Proteins and Proteomics (Springer Nature) and executive council member of Proteomics Society (India) and Protein Society (India). He is the recipient of multiple grants from several funding agencies and has peer-reviewed grant proposals and manuscripts for international journals.

Full profile: [www.bits-pilani.ac.in/goa/skundu/profile](http://www.bits-pilani.ac.in/goa/skundu/profile)

## BITS BIRAC BioNEST ranked in top Five Private Bio-Incubator in India in BioSpectrum India's Bio-incubator Survey

BITS BIRAC BioNEST bio-incubator ranked 4th in the list of life sciences incubators in the private incubators category in the recent survey conducted by BioSpectrum India, a leading B2B media platform in Life Sciences. Overall, BITS BIRAC BioNEST ranked 7th in India among 40 participating incubators and was applauded for the quality of its incubated startups and the funding raised. It is the only bio-incubator in Goa. The survey focused on both private and public incubators' achievements in the past financial year on four parameters: number of incubatees, funds raised, space available, MoUs signed with other agencies to attract enterprises/entrepreneurs. This year's edition analysed data from over 40 Bio Incubators and accelerators who participated in the survey. Ahead of us on the list is Venture Centre Pune, KIIT, Bhubaneswar, and Crescent, Near Chennai. All three of them have more than 35000 Sq Ft. of dedicated space for bio-incubation. We were able to manage to be on the top with 3500 Sq Ft. which is why we feel is a great achievement.

## A confluence of ideas academia

seminars/conferences/workshops/  
training programs

### EDUCATION OUTSIDE THE CLASSROOM- A WEBINAR ORGANISED BY THE HSS DEPARTMENT

Department of Humanities And Social Sciences, in collaboration with Teaching Learning Centre, BITS Pilani, K K Birla Goa Campus, organised an international conference on the theme of 'Education outside of the classroom' on 29<sup>th</sup> – 30<sup>th</sup> July 2022. The conference focused on the challenges of education during the pandemic and possible alternatives. The conference was inaugurated by Prof. Suman Kundu, Director, BITS Pilani Goa Campus.



The keynote speech of the conference was delivered by Prof. Shantha Sinha. The invited speakers in the technical sessions were Prof. Padma Sarangpani, Programme Co-ordinator of Radio Vishwas 90.8 FM, Prof. G.Nagarjuna, Prof. Shyam Menon, Prof. Ashwani Kumar, and Prof. Emmanuel Manalo. Around seventy researchers and academicians from China, Fiji Islands, Malaysia, Indonesia and India participated in the conference. The conference has come out with the idea of 'self-learning in education' as a strategy to deal with pandemics in the future.



### EnvironXcel - Program for GreenTech Startups launched by BITS Goa Innovation Incubation & Entrepreneurship Society

EnvironXcel, an accelerated pre-incubation program for GreenTech startups, was launched at BITS BIRAC BioNEST by Mr. Rajive Gulati, former Head, United Nations Technology Innovation Labs India, and Mr. Nalin Agarwal, founding partner of Climate Seed, in an online event held on 16<sup>th</sup> Feb 2022. Fifteen ideas were selected from over 50 applications by startups and innovators to form the first cohort of EnvironXcel.

The participants would be provided access to the high-end equipment in the Innovation lab, intensive business training, one-to-one coaching, mentoring & investor connections



It was a 12-week hard-touch program with advanced startup tools to help idea-stage entrepreneurs validate and scale their innovations in areas related to CleanTech, Climate Tech, Renewable Energy, etc.

#### **Village Entrepreneurship Bootcamp organised by BITS Goa Innovation Incubation & Entrepreneurship Society**

BITS Goa Innovation Incubation & Entrepreneurship Society (BGIIES) organized a one-day Entrepreneurship Bootcamp in association with Lions Club of Majorda Velsao Cansaulim and Kerala Sangamam at Zuarinagar on 12<sup>th</sup> March 2022. Thirty aspiring entrepreneurs from the villages of Cortalim, Velsao, Sancole, and Vasco attended the program. As a follow-on activity, the interested entrepreneurs will get mentorship and support from BITS BIRAC BioNEST. At the end of each such Bootcamp, the best business ideas would be selected for future support. This initiative was kicked off by BITS Pilani a year ago to support youth entrepreneurship in rural areas and promote innovative rural businesses outside of agriculture and agri-food. Such bootcamps are helpful to people who are looking for alternative sources of income, particularly those affected by COVID-19. The chief guest Mr. Rahul Bahadur, Project Officer, IIT Goa, encouraged participants and aspiring entrepreneurs to thoroughly study the society, come up with innovative business ideas, find the right local resources and succeed in life by starting startups. Mr. Harishkumar K, President of Lions Club of Majorda Velsao Cansaulim, while addressing the par-

ticipants, stated that such bootcamps empower and proactively engage entrepreneurs and enable them to unleash their innovative capabilities and realize their business ideas.



#### **Workshop on 'Industrial Bioprocess and Bioreactor Operations' organized at BITS Pilani, Goa Campus**

A two-day workshop on 'Industrial Bioprocess and Bioreactor Operations' was organized at BITS BIRAC BioNEST Innovation Lab located at BITS Pilani, K K Birla Goa Campus on 2<sup>nd</sup> & 3<sup>rd</sup> June 2022. The workshop was conducted by Dr. Vivek Rangarajan, Assistant Professor, Department of Chemical Engineering, and the research scholars of the department.



Around 20 participants from educational Institutes viz. Bangalore University, Goa University, Dhempe College of Arts & Science, PES RSN College of Arts & Science, and BITS Pilani attended the workshop. The workshop focused on bioprocess theoretical knowledge with an emphasis on hands-on training through experimentation in a bioreactor. Prof Mridula Goel, Joint Secretary, BITS Goa Innovation Incubation Entrepreneurship Society (BGIIES), inaugurated the workshop and explained several opportunities to develop innovations at the BITS BIRAC BioNEST.

## Workshop on 'Cell Culture Techniques' held at BITS BIRAC BioNEST Innovation Lab

BITS Goa Innovation Incubation Entrepreneurship Society (BGIIES) at BITS BIRAC BioNEST Innovation-Lab recently organized a three-day 'Cell Culture Techniques' workshop from 13<sup>th</sup> to 15<sup>th</sup> July 2022. Fifteen participants from Goa University, Dhempe College of Arts & Science, Parvatibai Chowgule College of Arts and Science, Bapuji Institute of Engineering and Technology (Davangere), Colorcon Asia Pvt Ltd, and BITS Pilani attended the workshop.

The workshop was convened by Prof. Anasuya Ganguly, Associate Professor, Dept. of Biological Sciences, BITS Pilani, K K Birla Goa Campus, and Co-founder of Tissue Engineered Pvt Ltd., a startup incubated with the BITS BIRAC BioNEST and was supported by a doctoral scholar Ms. Prajakta Bhende. The workshop focused on theoretical sessions emphasizing hands-on training through experimentation in Animal Cell Culturing using Laminar flow, CO<sub>2</sub> incubator, Biosafety cabinet BSL II and Deep freezer.



### BITS Pilani participates in the first "Biotech Startup Expo-2022"

The first "Biotech Startup Expo-2022" organized by the Department of Biotechnology (DBT), GoI, together with BIRAC and other Co-Partners (Ministry of Higher Education, DPIIT, and DST), was held during 9<sup>th</sup> – 10<sup>th</sup> June 2022 at New Delhi. The Expo was inaugurated by the Honourable Prime Minister of India, Shri Narendra Modi. The Expo was held to mark the completion of ten years of setting up of BIRAC (Biotechnology Industry Research Assistance Council). The objective of this Expo was to bring together #startups, #investors, #manufacturers and #Academic & #research institutions on a common platform. More than 300 Exhibitors (both Startups and Bio-incubators) participated in this Expo.

BITS Pilani participated in the event with a contin-

gent of 15 faculties and displayed multiple technologies developed by the Institute of Excellence.



From the K. K. Birla Goa Campus, Prof. Sunil Bhand and Prof. Meenal Kowshik led the efforts. Prof. Srikanth Mutnuri (Dept. of Biological Sciences) and Dr. Gautam Bacher (Dept. of EEE) were also part of the Expo team.

## 8<sup>th</sup> International Yoga Day observed at BITS Pilani, K.K. Birla Goa Campus

8<sup>th</sup> International Yoga Day was observed at the Students Activity Center (SAC) of BITS Pilani, K K Birla Goa Campus. The program was also streamed live on YouTube for the BITS community members who did not attend the programme. The programme was inaugurated by the Director, Prof. Suman Kundu in the presence of the Dean – Administration, Prof. D. M. Kulkarni; Associate Dean (SWD), Prof. Angshuman Sarkar; and Physical Education Instructor & In-charge SAC, Mr. Ajay Kewat. 'Yoga Guru' Mr. Sharad Chopdekar demonstrated various yoga asanas which were performed by the attendees. Mr. Chopdekar narrated its benefits to the attendees. Prof. Kundu felicitated Yoga Guru Mr. Chopdekar for conducting the programme. Prof. Kundu appreciated the efforts of Dean Administration, Associate Dean SWD, Mr. A K Patil, and Mr. Baiju and the AV Unit in making the programme successful.

## Renowned Vedanta teacher, Acharya Prashant speaks at BITS Pilani, Goa Campus

BITS Pilani, K K Birla Goa Campus organized a talk cum interactive session by renowned Vedanta teacher Acharya Prashant. Director of BITS Pilani Goa Campus, Prof. Suman Kundu, and Associate Dean – Practice School, Prof. Sachin Waigaonkar, welcomed and felicitated Acharya Prashant, one of

the most sought-after public speakers in the world today. Acharya Prashant, a national bestselling author and an alumnus of IIT Delhi and IIM Ahmedabad gave enlightening responses to questions raised by the students. Topics like career, decision making, science and superstition, spirituality, the purpose of life, relationships, etc. were addressed in the talk. The talk was attended by over 200 participants comprising students, faculty members and other staff of BITS Pilani, Goa Campus, in an offline and online mode. Acharya ji stressed that to combat superstition, it is necessary to understand the domain of both physical sciences and spirituality. While the material world is governed by physical laws, spirituality illuminates the world of our inner experiences. Therefore, any claims of spiritual practices leading to psychic powers show scientific as well as spiritual ignorance. Acharya ji urged the students to shun belief systems and to adopt a spirit of inquiry as the means to knowledge. The event was organized by the coordinated efforts of Prof. D. M. Kulkarni (Dean, Administration), Dr. Vadiraj Hemadri and the Prashant Advait Foundation.



## Visits by International Delegations:

### a) KTH Royal Institute of Technology, Sweden delegation visited BITS Pilani Goa Campus

A delegation from KTH Royal Institute of Technology, Sweden, visited BITS Pilani, K K Birla Goa Campus on 6<sup>th</sup> May 2022. The KTH delegation comprised Ms. Pia Schmitt, Project Support IRO, Mr. Jairam Vijayakumar Sujaya, International Student Recruitment & Mobility, IRO and Dr. Shareq Mohd Nazir, Asst. Professor, CBH school - a BITS Pilani Alumnus – B.E. Chemical Engineering (2005-2009 Goa Campus Batch) and M.E. Chemical Engineering (2009-2011 Goa Campus Batch). The visit was aimed to enhance research and student exchange collaborations between BITS Pilani and KTH Royal Institute of Tech-



### b) University of Nottingham (UK) delegation visits BITS Pilani, K K Birla Goa Campus

A delegation from the University of Nottingham (UoN), United Kingdom, visited BITS Pilani, K K Birla Goa Campus on 25<sup>th</sup> May 2022. The UoN delegation comprised of Dr. Nagamani Bora - Director of Biotechnology Degree Programmes; Dr. Steve Greedy - Associate Professor and member of the George Green Institute for Electromagnetics Research; Ms. Lucy Rose - Senior Education & Student Experience



Manager - Admissions, Faculty of Engineering; and Mr. Matt Bonner, International Partnership Manager. The visit was aimed to enhance collaborations between BITS Pilani and UoN in the field of research, students exchange and Off-Campus Thesis. The possibility of including experts in relevant areas from the University of Nottingham for joint supervision of PhDs was also discussed. The KTH and UoN delegations had a very fruitful interaction with Prof Suman Kundu, Director, K K Birla Goa Campus, Deans, Associate Deans and faculty members of BITS Pilani, Goa Campus. The event was coordinated by Prof. Rajesh Mehrotra, Associate Dean, International Programmes & Collaboration Division (IPCD) and Professor, Dept of Biological Sciences, Goa Campus.

### c) French Delegation visits BITS Pilani, K K Birla Goa Campus

Dr. Oliver Fudym, Attaché for Academic and Scientific Cooperation French embassy in India, Dr. Srinivas Kaveri, Director of CNRS Bureau, French Embassy, New Delhi and Ms. Siddhi Padture, Manager- Campus France, Pune visited BITS Pilani, K.K. Birla Goa Campus on 2<sup>nd</sup> June 2022.



The visit was aimed to share the information on fundings opportunities available in various research areas for BITS faculties/ research students in France and Student Exchange & Scholarship opportunities for BITS undergraduate students. French delegation made a presentation on the overall operations of CNRS (Centre National De la Recherche Scientifique) in India and their role in supporting and building collaborations with Higher Education universities, including BITS Pilani. The French delegation interacted with Associate Deans, HoDs and faculty members of BITS Pilani, K K Birla Goa Campus.

#### **Empowered Septic Tank as Decentralized Waste-water Treatment System by BITS Pilani Goa Campus inaugurated at Bogmalo Beach**

As part of DBT BIRAC, Bill & Melinda Gates Foundation Project awarded to BITS Pilani, K K Birla Goa Campus, BITS Pilani has designed and installed toilets and treatment systems at Bogmalo Beach. The project's expenditure was about Rs. 22 Lakhs

and was inaugurated by Hon. Minister for Panchayats, Govt. of Goa, Mr. Mauvin Godinho, on 18<sup>th</sup> June 2022. Sancoale Zilla Panchayat member Adv. Anita Thorat, Bogmalo Panchayat officials and Dr. Srikanth Mutnuri, Professor, Water Sanitation and Hygiene Laboratory, Dept. of Biological Sciences, BITS Pilani, K K Birla Goa Campus, were also present for the inauguration programme.



The decentralized treatment system with Vertical Flow Constructed Wetland and Electrochemical Disinfection System is a collaborative Project with Prof. Korneel Rabaey, Ghent University, Belgium. Campus, were also present for the inauguration programme.

## **Distinguished lectures/ webinars**

Date	Title of the Talk	Speaker's Name	Speaker's Designation/Affiliation	Organised by Department
17 <sup>th</sup> March 2022	From Answers to Questions in Fundamental Physics	Prof. Biswarup Mukhopadhyaya	Professor, ISSER, Kolkata	Physics
19 <sup>th</sup> July 2022	The Hunt for Extrasolar Planets and Preserving our Extraordinary Home World	Dr. Arunav Kundu	PI at Eureka Scientific, University of Maryland	Physics

Date	Title of the Talk	Speaker's Name	Speaker's Designation/Affiliation	Organised by Department of
5 <sup>th</sup> Aug 2021	Power of Electromagnetics: Trends & Technologies	Ms. Sumith S Pillai	Designtech Systems Ltd	EEE
6 <sup>th</sup> Aug 2021	Microwave measurements using vector Network Analyzer	Mr. Sadanand Bhatt	BITS Pilani, K. K. Birla Goa campus	EEE
22 <sup>nd</sup> July 2022	Introduction to quantum materials and devices	Prof. P.S. Anil Kumar	Professor, IISc, Bangalore	Physics
7 <sup>th</sup> Jan 2022	Pedestrian Crowd Dynamics Models & analysis	Prof S. Sundar	Department of Mathematics, IIT Madras	Mathematics
28 <sup>th</sup> Jan 2022	Cancellation of projective modules	Prof. Manoj Kumar Keshari	Department of Mathematics, IIT Bombay	Mathematics
9 <sup>th</sup> Feb 2022	Schur functions – A brief Survey	Prof. Jayadeb Sarkar	Department of Statistics and Mathematics Unit, Indian Statistical Institute – Bangalore	Mathematics
28 <sup>th</sup> Feb 2022	Global Stabilization of Viscous Burgers & Equations by Non linear Neumann Feedback Control: Theory and Computation	Prof. Amiya Kumar Pani	Department of Mathematics, IIT Bombay	Mathematics
16 <sup>th</sup> Mar 2022	Resistance Matrices of Balanced Directed Graphs	Prof. B Ravindra Bapat	Department of Mathematics, Indian Statistical Institute	Mathematics
31 <sup>st</sup> May 2022	Waving at Gravity	Prof. Cole Miller	University of Maryland	SEDS Celestia
7 <sup>th</sup> June 2022	What sets the masses of stars	Prof. Mark R.Krumholz	Computational Astrophysicist, Australian National University	SEDS Celestia
6 <sup>th</sup> July 2022	How to succeed at Research	Dr. Richard N Zare	Department of Chemistry, Stanford University, California	SEDS Celestia

# Alumni Affairs

## The Young Entrepreneur/ Alumni Meet held at BITS Pilani Goa Campus

Prof. Souvik Bhattacharya, Vice Chancellor of BITS Pilani along with Prof. Sudhirkumar Barai, Director of Pilani Campus; Prof. Suman Kundu, Director of K K Birla Goa Campus; and Prof. Srinivasan M, Director of Dubai Campus interacted with 17 BITS Pilani alumni during an exclusive 'Young Entrepreneur/ Alumni Meet' organised at BITS Pilani, K K Birla Goa Campus on 9<sup>th</sup> & 10<sup>th</sup> July 2022. The meet was organised by the Alumni Relations Division (ARD) of the K. K. Birla Goa Campus under the guidance of Prof. Veeky Baths, Associate Dean, ARD of Goa Campus. BITS leadership invited and interacted with these distinguished BITS alumni who have left a significant mark in the startup and business world. Various issues regarding the startup ecosystem were discussed during the meet. The discussion also focused on possible policies that could be adopted to encourage startup culture across the BITS campuses and measures to increase student engagement. The alumni felt that such fruitful discussion would certainly help improve the thriving entrepreneurial culture in BITS and encourage students to risk the startup path.

Sr.	Name	Campus	Designation	Company	Sr.	Name	Campus	Designation	Company
1	Sarthak Singh	Goa	Investor	Accel partners	10	Vignesh Mallya	Goa	Associate Director-Business Operations	ElevateHQ
2	Yashoraj Tyagi	Goa	CTO/CBO	Cashe	11	Vatsal Sanghvi	Goa	Business Development Manager	Flipkart
3	Shourya Agrawal	Goa	Co-founder	Flam	12	Hitesh Mehta	Goa	Business Analyst	UDAAN
4	Mohit Bhandari	Goa	Co-founder & CTO	Stratzy	13	Taaha Nizam	Goa	CEO	Incepthink
5	Sangle Gaurav Rajendra	Goa	Co-founder & CTO	Stratzy	14	Ishan sharma	Goa	Co-Founder	MarkItUp.in
6	Balasubramanian Sundararaman	Goa	Founder & CEO	Klinik Everywhere	15	Anand Dhamsaniya	Goa	Head Foreign Trade	Jebruna International Pvt. Ltd.
7	Anmol Shrivastava	Goa	Founder	Stealth Mode	16	Aishwarya Das	Goa	Head of Strategy & Partnerships	Graviky labs
8	Shreyans Sancheti	Goa	Co-founder	Bluelearn	17	Mehul Mohan	Goa	CEO	Codedamn
9	Harish Uthayakumar	Goa	Co-founder	Bluelearn					



# Significant projects

Sr. No.	Title of the Project	Principal Investigator/ Co-investigator and Department	Funding Agency	Proposed/ Sanctioned amount (Rs. In Lakhs)
1	Environmental impact assessment of production processes of Dimpa, Mefentrifluconazole, BAS-5601, Amino Ethyl Phenol, Mandipropamid, and Ortho substituted Phenyl Amide (Charges for NIPL studies)	Dr. Ashwin K P Mechanical Engineering	SERB	27.63 Lakhs
2	Quantification of emerging contaminants in Goa Water resources by cost efficient separation materials.	Dr. Halan Prakash Chemistry	DSTE-Goa	2.65 (1 st Year)
3	Tracking the import of SARS CoV2 and its variants by surveillance of Airport wastewater	Dr. Srikanth Mutnuri Biological Sciences Co-PI Dr. Anasuya Ganguly Dr. Tusr Saha Biological Sciences Dr. P Danumjaya Mathematics	SERB- Short-term special call on COVID-19	42.51
4	Investigations on Synthesis of a polymer which will exhibit photo-responsive features and its structural characterization	Dr. N N Ghosh Chemistry	BITSSA	2.00
5	Economic valuation of ecosystem services of selected wetlands in Goa	Dr. Sayantani Sarkar Humanities & Social Sciences	ICSSR	6.00
6	Impact of E-National Agriculture market (e-NAM) on the farmers from Goa and Maharashtra	Dr. Aswini Kumar Mishra Co-PI Dr. Rajorshi Sen Gupta Dr. Richa Shukla Dr. R. L. Manogan All Economics	ICSSR	7.50
7	Study of the role of sirtuin and visfatin crosstalk and its role in adiposity associated endometrial cancer	Akansha Savardekar Dr. Arnab Banerjee (Mentor) All Biological Sciences	Goa Cancer Society	10.39
8	Design and Development of Generalized low power convolution neural network HDL I.P	Dr. Vipin Kizheppatt EEE	DRDO	9.06

9	Determination of the protein folding, unfolding and refolding of spike glycoprotein of SARS corona Virus-2 in Rubik's Cube based statistical model and study of the thermodynamic interaction and kinetic behavior of the various equilibrated conformations with receptor of angiotensin converting enzyme-2 (ACE-2)	Dr. Paramita Halder Chemical Engineering	SERB	25.23
10	Mechanochemical synthesis of magnetic graphene oxide based reusable solid acid catalysts, their use synthesis of bioactive quinoxalines and further exploration towards green synthesis of influenza drug Favipiravir	Dr. Mainak Banerjee  Co-PI Dr. N N Ghosh Both Chemistry	UGC-DAE CSR	0.45
11	Radioactive ion beam irradiation of a multifunctional nanocomposite composed of multiferroic BiFeO <sub>3</sub> nanoparticle and semiconducting graphitic carbon, for tuning its electronic structure and properties and its application in the fabrication of high performance mechanically flexible all solid-state super capacitor device and photocatalyst for Industrial dye containing wastewater treatment under natural sunlight and solar power generated simulated solar light.	Dr. N N Ghosh Chemistry	UGC-DAE CSR	0.45
12	Development of GO (or rGO) based smart functional materials for removal of Hg(II) /organic Hg and fluoride ions from aqueous media by magnetic solid phase extraction (MSPE)	Dr. Amrita Chatterjee Chemistry	UGC-DAE CSR	0.45
13	Spin-dependence in hyperon production in proton-antiproton collisions: A model-independent theoretical analysis'.	Dr. P. N. Deepak Physics	SERB	17.06
14	Generation 2 Reinvented Toilet-III	Dr. Srikanth Mutnuri	Bill and Melinda Gates Foundation	211.63
15	Vibrating Antenna Radar	Dr. Ravi Kadlimatti EEE	SERB	24.53

16	Computational investigations and atomistic modeling on designing new two-dimensional Vander Waals heterostructured materials – A new direction of electrode materials towards next-generation energy storage devices	Dr. Paramita Halder Chemical Engineering	SERB	29.30
17	Cognitive Neuroscience Techniques and multimodal scheme to understand consumer behaviour	Dr. Veeky Baths Biological Sciences	Course5 Intelligence Private Limited	12.27
18	Comparative study of creep of different rotomouldable grade materials	Dr. Sachin Waigaonkar Mechanical Engineering	Polymerlink India Pvt. Ltd	2.36
19	Programmable self-assembly of passive and active colloidal particles for applications in micro-robotics, materials design and drug delivery	Dr. Indrani Chakraborty Physics	SERB	28.18
20	Design of Streamlined Ablatable Radome for Airborne Applications	Dr. Hrishikesh S Sonalikar EEE	DRDO	16.78
21	Development of low cost vectorised NavIC software receiver for urban environments	Dr. Nitin Sharma EEE	SERB	21.71
22	Design and Analysis of Methodologies for reliable optical network-on-chip Architecture	Dr. Kanchan Manna CS&IS	SERB	14.49

## Milestones in Solar Electricity Production on Our Campus!

Our Institute has achieved another milestone in producing Solar Electricity using Roof-Top SPV Technology, when in the month of April, 2022, a new capacity of 100 kWp of Roof-Top SPV System was installed. The system is installed by system integrator M/s Revayu Systems Pvt. Ltd, New Delhi, on part of the roof of A-Wing of the Institute building.



Aerial View of the Roof-Top Solar Photovoltaic System (100 kWp) installed in the A-Wing of the Institute Building (courtesy: Drone Photography by M/S

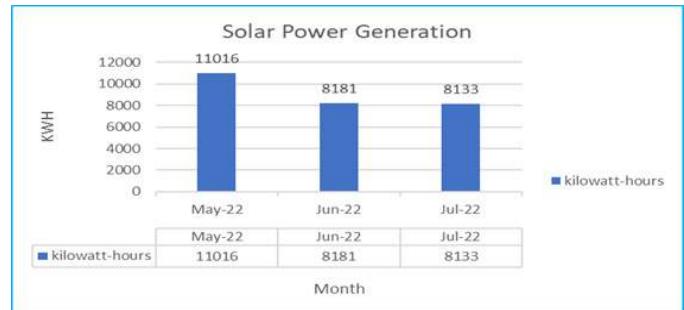
Revayu Pvt Ltd. New Delhi)

The system operates in Grid-tied mode and feeds solar electricity generated to the distribution grid in A-Wing, at the rate of about 600 Units (kWhr) per day on a sunny day, and has estimated payback period of about 4 years at the current rate of electricity of about Rs. 7 per unit. Apart from the benefits of electricity bill savings, improvement of the power quality and reduction in load on Diesel Generators are the additional benefits.



Functional Sub-systems: (Clock-wise from top Right) System Investigators, Three-Phase Inverter (100 kWp), View of Longest String Array of SPV Modules and Bi-directional Energy Meter for the Grid-tied System in 33 kV Sub-station.

The performance of the system can be remotely monitored on hourly basis, in terms of solar electricity produced (kWh) corresponding to incident solar energy. The electricity produced by the system in the months of May to July, 2022 is shown in the graph below:



Performance Monitoring of the 100 kWp System: Month-wise Solar Electricity production by the 100 kWp SPV system

Prior to the installation of the 100 kWp system, another roof-top SPV system of capacity 6 kWp was installed on the roof PCC-2 (Power Control Centre-2) behind the Institute Building, in the month of January, 2022. The system operates in grid-interactive mode, meaning the system exchanges electrical energy with the distribution grid controlled by the PCC-2. The system stores electricity produced during the daytime, (@ 20 to 24 units (kWhr) per day), in the battery bank provided, which is later used in the evening for energizing a section of street lights serviced by the PCC-2. The system may draw deficit power from the grid. The performance of the system is also being monitored on a daily basis using the online platforms provided by the system integrator, M/s Revayu Energy Systems, Mumbai. Apart from these new additions, to the fleet of the Roof-top SPV systems, there are three more roof-top systems installed on the roof of the Power Control Centres on campus, namely, PCC-3, PCC-1, and PCC-4, commissioned in the years 2014, 2018 and 2019, respectively.

These systems function in the same manner as the newly installed system on the roof of PCC-2. It is pertinent to note that the initiatives to install renewable energy systems on campus were initiated by the team of faculty members from the Department of EEE, service engineers, and technical staff of the Maintenance Division of the Institute, led by Professor M. K. Deshmukh, the then Faculty in-charge (Administration) as early as in June 2009. Under the project sponsored by the Ministry of New & Renewable Energy, Government of India, through Goa Energy Development Agency, the State Nodal Agency of the Ministry, two hybrid (Wind + SPV) energy systems were installed near PPC-3 and the Medical Centre, with installed power generation capacity of 10 kW (6.4 kWp SPV + 3.6 kW Wind) and 5 kW (3.2 kWp SPV + 1.8 kW Wind), respectively. These systems were inaugurated and commissioned by the then Chief Minister, Shri. Digambar Kamat, on 1st August, 2009. Subsequently, the performance of the system was monitored over a period of five years. The results of the monitoring confirmed that the solar photovoltaic component of the hybrid system was more productive than the wind electric component of the hybrid system, on an annual basis. To begin with, the SPV modules and the Wind Turbines were installed on the open land. On completion of the project, the wind electric components of the hybrid systems were decommissioned and the SPV Modules of the system was utilized for fabricating Street lights for use in Children's Park and open yards on campus.

Encouraged by the performance of the SPV systems, installation and commissioning of the smaller capacity roof-top SPV systems was sanctioned by the Institute. These systems were installed phase-wise on the rooftop of PCC-3 (6.75 kWp), PCC-1 (3.6 kWp), and PCC-4 (4.5 kWp), in the years 2014, 2018 and 2019, respectively. All of these systems have been operating in grid-interactive mode and supported by the battery bank. The electricity produced is utilized for energizing sections of the street lights connected to the respective PCC. These systems can be monitored remotely using the online platforms provided by the manufacturer Schneider Electric and the system integrator M/s NCE Systems, Madgaon.



The fleet of Roof-Top SPV systems powering Street Lights on Campus: (Clockwise from top left) Rooftop 3.6 kWp SPV System on PCC-1, Rooftop 6.0 kWp SPV System on PCC-2, Rooftop 6.75 kWp SPV System on PCC-3 and Rooftop 4.5 kWp SPV system on PCC-4

All of the above systems continue to be used for ongoing research and development. The focal areas of the research include technology mapping through field-performance assessment and benchmarking, modelling and simulation of the systems, Applications of IoT, prediction of performance using AI techniques, and Smart Grids. Encouraged by the results obtained opportunities for further increasing capacity of solar electricity generation for newer captive applications, such as, for example, charging of Electric Vehicles are being explored. The proposal to install Solar Power Plant of 1 MWp is approved in principle and efforts to realize the same will further secure the status of the Institute of Eminence of our Institute!

**The Solar Photovoltaic Power Project Team, consisting of Professor M. K. Deshmukh, Professor Ranjit S. Patil, Er. Anand K. Patil, Er. Jayram Gayatri, Er. Kaushik Phal Desai, Er. Baiju Krishnan, Shri. Surendra Kinlekar, sincerely acknowledges the Institute Administration for technical and financial support to the project.**

## Invited talks / workshops by faculty at other Indian/Foreign institutes

**Prof. Amiya Kumar Pani**, Department of Mathematics delivered a plenary talk in an online mode entitled 'Global Stabilization of Viscous Burgers' Equations by Nonlinear Neumann Feedback Control: Theory and Computation' in the International Conference on Dynamical Systems, Control, and their Applications, held at IIT Roorkee from 1<sup>st</sup> to 3<sup>rd</sup> July 2022.

**Prof. Amiya Kumar Pani**, delivered a workshop talk on 'Heat Equation and Black-Scholes Equation' and on Computational Studies of Option Derivatives in the High-End Workshop entitled 'Computational Finance', organized by the School of Mathematics and Computer Science, IIT Goa, from 10<sup>th</sup> to 16<sup>th</sup> July 2022.

**Prof. Judith M. Braganca**, Department of Biological Sciences, delivered a talk entitled 'Overview of Covid-19 Vaccine Technologies&' at the Festival of Science and Technology "Vigyan Sarvatra Pujiyate" at the Goa University on 25<sup>th</sup> February 2022.

**Dr. Kanchan Manna**, Department of Computer Science and Information Systems delivered a talk at a workshop on "Hands on Experience in C Programming" conducted by the School of Electrical and Electronics Engineering at REVA University, Bengaluru, India on 21st March 2022.

**Prof. Lakshmi Subramanian**, Department of Humanities and Social Sciences, was invited to deliver the prestigious Smt. Nabadurga Bannerjee Endowment Lecture by the Asiatic Society of Bombay on 15<sup>th</sup> November 2021. Prof. Lakshmi delivered the lecture entitled 'Radio, academies, public concerts and the staging of modern Indian classical music: a case for new socio-aesthetic categories'.

**Prof. Lakshmi Subramanian** delivered an invited lecture to commemorate Azadi ka Amrut Mahotsav at the Kerala Historical Research Commission on 22<sup>nd</sup> April 2022.

**Dr. Mayank Goel**, Department of Mathematics, delivered a lecture on 'High-End Workshop on Computational Finance' at a workshop sponsored by Science and Engineering Research Board (SERB) through Accelerate Vigyan Scheme, DST, Govt. of India, and facilitated by and held at IIT Goa from 10<sup>th</sup> to 16<sup>th</sup> July 2022.

**Prof. Radhika Vathsan**, Department of Physics, delivered an invited talk on 'Testing Gravitational Self-interaction via Matter-wave Interferometry' in QIQT 2022 on 6<sup>th</sup> July 2022.

**Dr. Rajiv Chaturvedi**, Department of Humanities and Social Sciences delivered a session on 'Mapping of Climate Change Hotspots in Indian Forests' as part of the National Training Programme on 'Audit of Forestry and Biodiversity issues with focus on use of recent techniques' organised by The International Centre for Environment Audit and Sustainable Development (ICED), Jaipur, for the officers of Indian Audit and Accounts Department (IA&AD) in virtual mode.

**Dr. Solano Da Silva**, Department of Humanities & Social Sciences, was invited by the Norwegian Network for Asian Studies and the Department of Social Anthropology, the University of Oslo, from 22<sup>nd</sup> June to 10<sup>th</sup> July 2022 to continue an ongoing research collaboration on land use in Goa. A book titled Great Goa Land Grab co-authored with Prof. Kenneth Bo Nielsen and Prof. Heather Plumridge Bedi based on fieldwork conducted for over a decade will be published shortly.

**Dr. Solano Da Silva** was invited by the Department of Urban Design, Goa College of Architecture, on 18<sup>th</sup> June 2022 to deliver a lecture on Land, Commodification and Dispossession for Tourism in Goa.

**Mr. Tirtharaj Dash**, Department of Computer Science and Information Systems, delivered an invited talk titled "Human-in-the-Loop Machine Learning: Inclusion of Domain-Knowledge into Deep Neural Networks" at Davis Institute for Artificial Intelligence, USA, February 25<sup>th</sup>, 2022.

**Prof. Veeky Baths**, Department of Biological Sciences and Project Coordinator of the Erasmus+ iBrain project, visited the two premier institutions in Russia: the Centre for Cognition and Decision Making (CCDM), HSE Moscow; and the Institute of Higher Nervous Activity and Neurophysiology (IHNA & NPh), RAS Moscow. During this visit, held from 1<sup>st</sup> to 11<sup>th</sup> Feb 2022, he was part of the project titled ‘iBrain–Integrated Track in Brain and Cognitive Neuroscience.’ Prof. Baths met the project investigators and collaborators of the project.

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**Prof. Veeky Baths** delivered a guest lecture titled “Multimodal framework and fusion of EEG, graph theory and sentiment analysis for the prediction and interpretation of consumer decision” to the faculty and students of the Centre of Cognition and Decision Making (CCDM) at the Higher School of Economics (HSE), in Moscow. He visited the EEG, Eye tracking and fNIRS laboratories at the Centre and met his counterparts Dr. Viktoria Moiseeva (Dy. Director, CCDM and iBrain Project Manager) and Dr. Anna Shestakova (Director, CCDM and iBrain Project Coordinator) to discuss the development and progress of the project activities. Further, he also visited the Institute of Higher Nervous Activity and Neurophysiology (IHNA NPh), which is a part of the Institution of Russian Academy of Sciences (RAS) and met Dr. Olga Martynova (iBrain project coordinator) to discuss and evaluate the iBrain project progress. He shared the academic and research achievements done by the students, faculty and research groups at BITS Pilani, K. K. Birla Goa Campus.

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**Dr. Vivek Rangarajan**, Department of Chemical Engineering, delivered a lecture on “Biomolecules in Perspective to Industrial Application” as an invited speaker at the International Conference on Biosciences and Bioengineering (ICRABB-2022) (Online Mode) organized by the Department of Biotechnology, SRM Institute of Science and Technology, Chennai, held from 23<sup>rd</sup> to 25<sup>th</sup> Feb 2022.

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**Dr. Vivek Rangarajan** and his Ph.D. scholars Neela Gayathri Ganesan and Subhranshu Samal (Department of Chemical Engineering) conducted a workshop on “Industrial Bioprocess and Bioreactor Operations” for 20 students. This work was organized by BITS BIRAC Bionest, BITS Pilani, K K Birla Goa Campus on 2-3 June 2022.

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## Faculty-achievements

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**Dr. Arnab K. Paul**, Department of Computer Science and Information Systems, authored 3 top-tier publications (Core A). Among them, 2 were published at ACM HPDC, one of the best computer systems conferences in the world.

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**Prof. Arun V Kulkarni**, Department of Physics was appointed a Scientific Observer for the Indian contingent of 5 (10+ 2 Level) students selected from all over India for competing in the International Physics Olympiad (IPhO). The IPhO was organised by the Physics Association of Switzerland in an online mode from 10<sup>th</sup> to 17<sup>th</sup> July 2022. The team won 1 Gold and 4 Silver Medals at this Olympiad. Prof. Kulkarni was appointed by the coordinator of all Olympiad Programs, Prof. Anwesh Mazumdar at the Homi Bhabha Center for Science Education (Mumbai). In a training programme for the team of 5 students, Prof. Kulkarni also delivered lectures on Special Relativity and Coupled Oscillations from 4<sup>th</sup> to 9<sup>th</sup> July 2022.

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**Prof. Bharat M. Deshpande**, Department of Computer Science and Information Systems has been appointed as a member of the 10-member Goa State Information Technology (IT) Advisory Council constituted by the Government of Goa in July 2022.

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**Dr. Hemant Rathore**, Department of Computer Science and Information Systems, received the prestigious “K Shankar Meritorious Paper Award 2021” awarded by IEEE Bombay Section for his paper entitled ‘Robust Android Malware Detection System against Adversarial Attacks using Q-learning’ published in Information Systems Frontiers in May 2022.

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**Prof. K A Geetha**, Department of Humanities & Social Sciences received the “Best Presenter Award” for her paper titled “Women as Subaltern Counter-publics: A Feminist Discourse Analysis of the Farmer’s protest” presented at the 8<sup>th</sup> World Conference for Women Studies in May 2022.

**Prof. K A Geetha**, Department of Humanities & Social Sciences received the “Best Presenter Award” for her paper titled “Women as Subaltern Counter-publics: A Feminist Discourse Analysis of the Farmer’s protest” presented at the 8th World Conference for Women Studies in May 2022.

**Prof. Lakshmi Subramanian**, Department of Humanities and Social Sciences, has been selected to be a panel member of History and Archeology at the Research Council of Flanders, Belgium (2022-23).

**Prof. Prasanta Kumar Das**, Department of Physics has been selected in the Visiting Associateship Programme at the Inter-University Centre for Astronomy and Astrophysics (IUCAA), Pune in July 2022.

**Dr. Priyadarshini Parakh**, Dr. Gokulakrishnan Subramanian, Dr. Prasad Panzade and Prof. Halan Prakash, Department of Chemistry, were granted Patent in India for their invention ‘A Bactericidal Composition and a Method for Disinfecting Water Under Visible Light Irradiation’. This research work was supported by CSIR-India, DBT-India, ABSTCL, ABG and BITS Pilani.

**Prof. Rajesh Mehrotra**, Department of Biological Sciences was invited to be the conference chair at the 40th World Conference on Applied Science, Engineering and Technology (WCASET) organized by Institute for Engineering Research and Publication (IFERP) in Goa on 30<sup>th</sup> and 31<sup>st</sup> Dec 2021.

**Dr. Rajiv Kumar Chaturvedi**, Department of Humanities and Social Sciences was appointed to National and State Level Task Group and Committee as a member for the ‘Thematic Task Group 6’ (to Promote the quality and coverage of forests consistent with social usages and ecological attributes of forests) constituted by Ministry of Environment, Forest and Climate Change (Govt. of India) to facilitate the preparation of India’s Long-Term Low Greenhouse

Gas Emissions Development Strategy.

Dr. Chaturvedi was appointed as a Team Leader of the ‘Sub-Committee of Climate Change, Biodiversity and Budgetary Aspects’ for preparation of Goa State Biodiversity Strategy and Action Plan.

**Prof. Ranjan Dey**, Department of Chemistry was invited to join the Statistical Mechanics and Thermodynamics Group Committee of the Royal Society of Chemistry in July 2022.

**Prof. Rayson K. Alex**, Department of Humanities & Social Sciences has won the prestigious Fulbright-Nehru Academic and Professional Excellence Award for the academic year 2022-23. Prof. Rayson will teach a course titled, ‘Environmental Justice movements in India’ to the graduate students at the Fairhaven Interdisciplinary College at the University, and conduct his research on environmental humanities pedagogies in India and the US.

**Prof. Reena Cheruvalath**, Dept. of Humanities and Social Sciences received a ‘short-term research fellowship’ from University of Victoria, British Columbia, Canada for the period from June to August 2022.

**Prof. Snehantha Saha**, Department of Computer Science & Information Systems and APPCAIR, received global recognition for leading efforts in advancing technology for humanity and for his notable services and contributions towards the advancement of Engineering professions from IEEE Global Technical Activities Committee. He was invited by Knowledge Chamber of Commerce and Industry to speak on technology penetration; 02 European Patents (Granted); Board of Governors- HappyMonk AI labs, Bangalore; Featured in Media for work on Habitable Exoplanets (English, Bengali and Malayalam); Fellow-IETE and was a Visiting Scientist, Indian Statistical Institute, Bangalore (Summer Term).

**Dr. Sravan Danda**, Department of Computer Science and Information Systems, was elevated as a senior member of IEEE in April 2022. Senior member is the highest profession grade of IEEE for which a member may apply. It requires extensive experience, and reflects professional accomplishment and maturity. Only 10% of more than 4,00,000 IEEE members have achieved this level.

**Mr. Tirtharaj Dash**, Department of Computer Science and Information Systems, has been awarded Best Short Paper Award from the ACM in ACMSE 2022 for their paper: G. Chhablani, A. Sharma, H. Pandey, T. Dash, "Superpixel-based Knowledge Infusion in Deep Neural Networks for Image Classification", ACM Southeast Regional Conference (ACMSE), 2022, Virtual, USA, DOI: 10.1145/3476883.3520216.

**Mr. Tirtharaj Dash** has been a Program Committee member for the following top-tier conferences:

- International Joint Conference on Artificial Intelligence (IJCAI-ECAI) 2022
- AAAI-International Workshop on Combining Learning and Reasoning (CLeaR) 2022
- International Conference on Database Systems for Advanced Applications (DASFAA) 2022
- International Joint Conference on Neural Networks (IJCNN) 2022

**Dr. Tusrar Tirtha Saha**, Department of Biological Sciences had his paper titled 'Direct and Indirect Gene Repression by the Ecdysone Cascade During Mosquito Reproductive Cycle' published in PNAS. The paper was co-authored by Roy S, Saha TT, Ha J, Banerjee R, Aksoy E, Kulkarni A, Raikhel AS.

**Prof. Vinayak Naik**, Department of Computer Science and Information Systems, has been appointed a member of the Research Advisory Council of D Y Patil International University, Akurdi, Pune

**Prof. Vinayak Naik** has been appointed a member of the Expert Committee for Science & Engineering Research Board (SERB), Department of Science and Technology (DST) Special Call on "Wearable Electronics for Biomedical Applications"



Tree Plantation Drive under the guidance of Prof. Suman Kundu, Director, BITS Pilani, K K Birla Goa Campus held on the occasion of World Environment Day on 5 th June 2022.

# Student achievements

Five alumni from K K Birla Goa Campus were featured in 'Forbes 30 under 30 – Asia 2022' list released in June 2022. <https://www.forbes.com/30-under-30/2022/asia/consumer-technology/>

Malhar Patil, Rajat Gupta, and Shourya Agarwal (all alumni), are the founders of Flam App. They have raised \$3.5 million recently and their current valuation is in the range of \$50-\$75 million.

Harish Uthayakumar and Shreyans Sancheti are the founders of Bluelearn. They have raised a pre-seed round of \$4 million recently and their current valuation is in the range of \$4-\$6 million.

After release of the list, Prof. Suman Kundu, Director, BITS Pilani, K K Birla Goa Campus invited and felicitated **Harish Uthayakumar** and **Shreyans Sancheti**.

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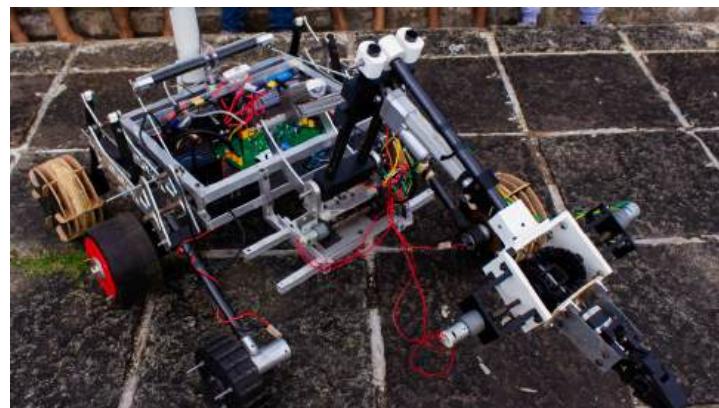
**Project Kratos** team of BITS Pilani, K K Birla Goa Campus consisting of 12 multi-disciplinary students represented the Institute at the finals of the University Rover Challenge (URC) 2022 held from 1<sup>st</sup> to 4<sup>th</sup> June 2022 at Utah, the USA. The team secured the topmost position among the Indian competitors, ranked 2nd in Asia and finished 21<sup>st</sup> worldwide in URC 2022. In the Science Task category, the team ranked 12th worldwide. The team leader, **Ithihas Madala (2018B1AA0607G)**, reported from Utah, the USA.

The final competition had 36 teams from top universities of 10 different countries. This year, with a record 99 registrations, BITS Pilani was one of the only 4 teams that qualified from India. The competition took place at Mars Desert Research Station (MDRS), where NASA also tests its rovers.

To augment the help rendered by the Institute, proud Alumni of BITS Pilani, Mr. Prashanth Palakurthi and Mrs. Anuradha Palakurthi generously supported the team with US\$ 15,000.

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Project Kratos secured a worldwide rank of 2<sup>nd</sup> and stood 1st in Asia in the finals of the Anatolian Rover Challenge (ARC) held in Istanbul, Turkey from 22<sup>nd</sup> to 25<sup>th</sup> July 2022. The team has also been awarded the best 'Autonomous and Controls Vertical' and 'Science Vertical' by consensus of the Judges and Jury. Kratos scored the most points amongst all the





The BITS Pilani - Goa Campus Men's Badminton team was crowned champions in the Men's Team Badminton Event conducted during Revels, Manipal Institute of Technology's annual national-level Sports and Cultural Festival, held between 10<sup>th</sup> - 16<sup>th</sup> April, 2022. The team comprised of **Sushil Nayak (2020AAPS0239G)**, **Tanmay Bankar (2020A7PS0976G)**, **Vardhan Palod (2020A7PS0982G)**, **Anshit Garg (2018A8PS0306G)**, **Manas Patil (2020B2A32020G)**, **Ansh Gupta (2020A8PS1506G)** and **Abhav Mehrotra (2019A7PS0145G)**. Additionally, Sushil Nayak was awarded the Best Men's Player trophy.

teams in Mission 3 (Testing capabilities of Robotic Arm) and Mission 4 (Testing Science vertical), with a 98 out of 100 score in the latter. The Challenge was organized by the Space Exploration Society (UKET), and the final round of the competition hosted over 12 participant teams from all across the world.

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**Team Scarecrows** comprising of **Sushant Sreeram Swamy (2019A7PS1031G)**, **Hrishikesh Kusneniwar (2019A7PS0179G)**, **Hitarth Kothari (2019A7PS0178G)** and **Hardik Shah (2019A7PS0076G)** secured third position in the BITS Pilani API Hackathon 1.0 held in April 2022. The team was awarded a cash prize of Rs. 10,000 from Postman.

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The team **Analysis Aces** comprising of **Jayashree R (2018B3A70769G)** and **Sohan Misra (2019A4PS0771G)**, competed with more than 1600 teams in over three rounds and secured the first position in IMTheFuture 6.0. This national competition was organized by the Admissions Committee, Institute of Management Technology (IMT) Ghaziabad in January 2022. The team was awarded a cash prize of Rs. 30,000.

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The BITS Pilani - Goa Campus Women's Badminton team comprising of **Aditi Sethi (2019B5A70261G)** and **Rajvi Sampat (2018B4A70820G)** secured Runner-up Position (silver medal) in the Women's Team Badminton Event conducted during Revels, Manipal Institute of Technology's annual national-level Sports and Cultural Festival, held between 10<sup>th</sup> - 16<sup>th</sup> April, 2022.

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**Abheesh Bhardwaj (2019B1A41117G)**, **Arjun Nag (2020A8PS2085G)** and **Mandar Joshi (2020A7PS1730G)**, representing BITS Pilani - Goa Campus, secured the second place (silver medal) in the Men's Team Table Tennis Event which was a part of Revels, Manipal Institute of Technology's annual national-level Sports and Cultural Festival, held between 10<sup>th</sup> April-16<sup>th</sup> April 2022.

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The team comprising **Ayushi Dubal (2019A7PS0099G)** and **Naresh Chavan (2019B5A70638G)** won the qBraid Challenge for OpenQASM. The challenge was a part of the Quantum Coalition Hackathon. (QCHack 2022) hosted by students of Yale, Duke, Stanford and Berkley on 9<sup>th</sup> – 10<sup>th</sup> April 2022. The team built a robust parser that generates OpenQASM2.0 code which is equivalent to the input Amazon Braket circuit.

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BITS Goa Team comprising of **Sumiran Kasturi (2020B1B22041G)**, **Ishan Tandon (2020A4PS0521G)**, **Omkar Nabar (2020A7PS00119G)** and **Aniruddha Nayak (2020B1AA0711G)** participated in Mimamsa, a national level annual Science Quiz organized by IISER Pune held on 20<sup>th</sup> Feb 2022. The team emerged as the Zonal Topper for the Goa/ Karnataka Zone, and also secured the Subject Runner-Up position in Physics subject in the Prelims stage of the competition.

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**Abheesh Bhardwaj (2019B1A41117G)** represented Haryana table tennis team in UTT National Ranking Table Tennis Championship – 2021 (Central Zone)

held at Indore (Madhya Pradesh) from 3<sup>rd</sup> to 9<sup>th</sup> Jan 2022. Abheesh is ranked in top 100 players in that Zone.

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**Advait Anil Menon (2019A4PS0414G)** Dept. of Mechanical Engineering has been selected for a semester exchange at University of Guelph, Canada in Semester I AY 2022-23 (Sept- Dec 2022). Advait will be receiving a scholarship of total tuition fees waiver during his semester exchange at the host university. The entire process of shortlisting and selection of student was coordinated by IPCD, BITS Pilani, K K Goa Campus and Centre for International Programs Office, University of Guelph.

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**Anagha Rajesh (2020B2PS1953G)** has been selected as an Ashoka Young Changemaker for 2022. Ashoka is the world's largest network of social entrepreneurs. Out of 1000+ applications from across the country, Anagha made it to the list of 13 changemakers after 4 rigorous selection rounds. She will now be a part of a year-long training and co-leading program focused on accelerating her change-making initiatives in the mental health space.

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**Anagha Rajesh (2020B2PS1953G)** won the best adjudicator prize at the IIT Kanpur British Parliamentary Debate (April 2022) and the second-best adjudicator award at the BITS Pilani British Parliamentary Debate (May 2022).

**Anagha Rajesh (2020B2PS1953G)** made it to the top 100 out of 26,000 applicants in the Adecco CEO for a Month contest.

**Anagha Rajesh (2020B2PS1953G)** has been shortlisted as one of the top 50 finalists for the Global Student Prize from among 7,000 applicants from around the world.

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**Aniruddha Nayak (2020B1AA0711G) & Sumiran Kasturi (2020B1B22041G)** of Biological Sciences Department were selected for the prestigious JNCASR SRFP 2-month Summer Research Fellowship Programme at the Jawaharlal Nehru Centre for Advanced Scientific Research in Bengaluru in June 2022.

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**Anupam Kumar (2019A3PS0348G)** has been selected as a Google Summer of Code Intern at GNOME. Atishay will be working at Dalhousie University in

Foundation. He will be working to add support for the Chromecast protocol in the GNOME Network Displays App, which currently supports only Miracast protocols. After this addition, users would be able to cast their laptop screens, videos, youtube videos, and play audio on their Chromecast devices (which includes Android TVs).

The project details: <https://summerofcode.withgoogle.com/programs/2022/projects/DqAFewgr>

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**Atishay Jain (2018B5A70908G)**, a fourth-year Physics and Computer Science student, has received the prestigious Mitacs Globalink Research Internship, sponsored by the Government of Canada (25<sup>th</sup> July to 15<sup>th</sup> Nov 2022). As a part of this internship, Atishay will be working at Dalhousie University in the field of Complex Networks on "Quantitative Analysis of Organismal Aging and Mortality" which uses Statistical Mechanics and Deep Learning to gain insight into this important process.

The Mitacs Globalink Research Internship is a competitive initiative for international undergraduates from Australia, Brazil, China, France, Germany, Hong Kong SAR, India, Mexico, Tunisia, the United Kingdom, and Ukraine. Each year, top-ranked applicants participate in a twelve (12) week research internship under the supervision of Canadian university faculty members in a variety of academic disciplines, from science, engineering and mathematics to the humanities and social sciences.

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**Arjun Tyagi (2019A8PS0579G)** has been selected for Arizona State University's Summer Undergraduate Research Internship (SURI) program. His project advisor Prof. Arindam Sanyal was kind enough to extend his support to cover Arjun's housing fee, insurance, etc. of around \$4000. Arjun was also selected for IIT Delhi's Summer Research Fellowship Programme (SRFP) for summer of 2022.

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**Devashish Gupta (2017HD410151G)** secured first position in 'PackMax Ideate' competition conducted by Techfest IIT Bombay and won prize of Rs. 87,500. The hackathon was jointly organised by IIT Bombay and Godrej & Boyce. It was based on a set of computationally hard problems in the logistics/ transportation sector and aimed at reducing its overall carbon footprint and impact on the global climate. Results were declared on 26<sup>th</sup> January 2022. (Video

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link: [https://www.linkedin.com/posts/godrej\\_pack-max-activity-6913176711475986432-auZK?utm\\_source=linkedin\\_share&utm\\_medium=member\\_desktop\\_web](https://www.linkedin.com/posts/godrej_pack-max-activity-6913176711475986432-auZK?utm_source=linkedin_share&utm_medium=member_desktop_web))

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**Hardik Shah (2019A7PS0076G)** received the D.A.A.D Fellowship - for Summer 2022 in Germany. He will be pursuing 3D Scene Reconstruction from a stereo-camera and deploying the same on a mobile ground robot. The reconstructed environment would then be used for further scene understanding and path planning if required. Hardik will be working on this project under the supervision of Prof. Niclas Zeller at the Robot Vision Lab, HKA (Karlsruhe University of Applied Sciences).

Hardik Shah was the Autonomous Subsystem Lead for Project Kratos for the year 2021-22. Project Kratos qualified to participate in University Rover Challenge 2022 finals which was held at the Mars Desert Research Station in Utah, USA from 1st to 4th June 2022. The team secured the topmost position among the Indian competitors, ranked 2nd in Asia and finished 21<sup>st</sup> worldwide in URC 2022. In the Science Task category, the team ranked 12th worldwide.

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**Ishan Gupta (2020A3PS1451G)** won the video editing competition organised by the Sports Engineering Association of India in January 2022. He won a cash prize of Rs 10,000 and an invitation to the international conference on Sports Engineering held in Jodhpur from 3<sup>rd</sup> to 5<sup>th</sup> March 2022.

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**Ishan Gupta (2020A3PS1451G)** participated in the International Heartfulness Essay Event 2021 and received an Honourable Mention among all the entries received in the category, whose results were announced in January 2022. The event was organized by Heartfulness Education Trust, Shri Ram Chandra Mission, UNESCO MGIEF and UNIC for India and Bhutan.

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**Kaarthick Raaja (2016PHXF0407G)**, Department of Chemical Engineering won second place in Jarakabande Eco Ultra 2022 marathon, conducted by Bhasin Sports on 23<sup>rd</sup> – 24<sup>th</sup> April, 2022 at Jarakabande Forest, Bangalore.

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**Moitrish Majumdar (2017B4A70750G)**, completed

his final semester thesis at Dartmouth College in the USA under the supervision of Dr. Alice C. Schwarze, Department of Mathematics. His thesis was selected as a contributed talk at the International Conference on Complex Networks (CompleNet), which was held virtually from 30<sup>th</sup> May to 1<sup>st</sup> June 2022 where he made a presentation on his work, involving network models in bacterial populations.

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**Namrata Ahuja (2020B2A81978G)** participated as a speaker in the IMC's YLF Annual Youth Conclave 2022, Session 4 'Digital India @100: Inclusive Growth' organized by the IMC Chamber of Commerce and Industry's Young Leaders' Forum held on 24<sup>th</sup> & 25<sup>th</sup> June 2022.

DAY 1 - <https://youtu.be/rUxsYddKU90>  
Day 2 - <https://youtu.be/gDNetx6Cyb0>

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**Neela Gayathri Ganesan**, PhD scholar under the supervision of Dr. Vivek Rangarajan (Department of Chemical Engineering) showcased her research work entitled "Biocosmetic nano-emulsions for skin-care applications" in the workshop ISDC 2022 organized by Indian Home and Personal Care Industry Association on 11<sup>th</sup> July 2022 at Goa.

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**Nikita Sahu (2018A1TS0654G)** has received the Erasmus Mundus Masters Scholarship, for a two-year fully funded Master's Program in Nanoscience and Nanotechnology, for the Academic Year 2022-24 across two EU countries. The approx. scholarship amount comes to 49,000 Euros. The link to the program is <https://www.emm-nano.org/>

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**Satyam Bansal (2020A7PS0171G), Ansh Srivastava (2020A3PS2056G), and Aayush Nayak (2020A8PS1301G)** have been awarded the CHANAKYA UG-FELLOWSHIP from iHUB DivyaSamprak, setup under NM-ICPS at IIT Roorkee for the project entitled "LoRaWAN Mesh-Based Emergency Communication System for Marine Applications," under the guidance of Dr. Rahul Thakur (Assistant Professor, CSE, IIT Roorkee) and Dr. Swati Agarwal for 6 months, with a stipend of Rs 10,000/- per month for each of the student.

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**Shikha Bhat (2019A7PS0063G)** was selected for Micron India's University Research Alliance (URAM) Scholarship 2021-22 in April 2022.

The URAM Scholarship Program is to nurture and reward academic rigor, innovation, research and co-curricular pursuits of women engineers to support advanced STEM career pathways. She was one of the 59 recipients from all over India, and have received a scholarship amount of Rs. 1,00,000/-. More details about the scholarship can be found on their webpage - <https://uramscholarship.in/>

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**Shreya Kapila (2018A1PS0538G), Rishi Devendra Singh (2018A1PS0190G) and Neela Gayatri Ganeshan** (PhD student under Dr Vivek Rangarajan) co-authored a paper under the guidance of Prof Vivek Rangarajan with the title of "A review on Green nanoemulsions for cosmetic applications with special emphasis on microbial surfactants as impending emulsifying agents", which is published in the Journal of Surfactant and Detergents 2022;1–17. The link for the paper is <https://doi.org/10.1002/jsde.12571>

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**Shubham Gandhi (2019A7TS0086G)** received the Summer Internship Assistance (SIA) 2022 Award funded by Goa campus alumni of 2010 & 2012 batches. This summer he will be working as an undergraduate researcher at BINN Lab on 'Dynamic Object Recognition using NeuCube'. This assistance is offered to encourage students to conduct summer research at educational / research institutions across India (including BITS campuses) which is aimed at helping students gain valuable research experience that could manifest in the form of journal and conference publications later or help them choose their career path.

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**Shubham Gandhi (2019A7TS0086G)** secured an off-campus thesis at Microsoft Research India for the first semester of the academic year 2022-23. He shall be working from the Bengaluru office on program learning - a combination of program synthesis and machine learning for a period of six months under Mr. Suresh Parthasarathy with Prof. Hemant Rathore as his on-campus supervisor.

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**Snehashis Alam (2021PHXP0026G)**, a PhD student in the Dept. of Humanities and Social Sciences under the guidance of Dr. Mohan Kumar Bera, authored a research paper: **Snehashis, A., Vijaya, S. M., Kumar, M. K., & Shoaib, R. (2022) Characteristics of**

**the Earthquake Swarms in the Andaman Sea Region, India, from 1960-2020. Disaster Advances, 15(3), 21–28.**

Snehashis Alam also presented two papers: "A Seismotectonic Analysis of Earthquake Swarm in Andaman and Nicobar Islands Region, India (1960 to 2020)" presented at International Indian Ocean Science Conference (IIOSC-2022) on Geology, geophysics and seabed mapping of the Indian Ocean, 14th – 18th March, 2022 at National Institute of Oceanography (NIO), Goa.

"Flood hazard and gender vulnerability: a case study of Malda District, West Bengal" presented at the International Conference on 'Challenges to Disaster Risk Reduction and Resilient Habitat' held on 5th and 6th April, 2022, at Shaheed Bhagat Singh College, University of Delhi, New Delhi.

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**Tejas Musale (2019A3PS0409G)** has been selected as a Research Intern at the Chair of Processor Design at the 'Centre for Advancing Electronics Dresden (CFAED)' of TU Dresden, Germany. This research internship will be under the guidance of Prof. Akash Kumar for a semester. He will be awarded with a scholarship of 861 Euros per month for the same. As a part of this research, he will be exploring Hardware Accelerators for Edge based Biomedical Signal Processing Systems.

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**Vedant Bang (2019AAPS0251G) and Anantha Vyasaraju (2019A3PS1323H)** co-authored a paper titled "Effect of lanthanide dopants on stability of orthorhombic hafnium oxide for pyroelectric applications" which was published in the Materials Letters Journal Volume 317 on 17<sup>th</sup> March 2022. The other authors of the paper were from CSIR-CEERI Pilani. Link to the paper: <https://doi.org/10.1016/j.matlet.2022.132097>

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**Yash Nilesh Soman (2020AAPS1429G)** successfully completed a coding challenge offered by Postman. 30 days of Postman – for developers is a coding challenge hosted by Postman, held in June 2022, was completed within 22 days. Yash was one of the 225 developers in the world who have successfully completed this coding challenge. Yash also completed Postman's one-day Student Expert Program in June 2022.

**Faculty members appointment on national/ international advisory committees/ acted as reviewers for books/ journals of national/ international repute**

<b>Faculty Name</b>	<b>Department of</b>	<b>Name of Advisory Committee / Editorial Board</b>
Prof. Vinayak Naik	CSIS	A member of the Expert Committee, A Special Call for Proposal on 'Wearable Electronics for Biomedical Applications' by Science & Engineering Research Board (SERB) by the Department of Science and Technology (DST) Solvents, And Conventional Solvents"
Dr. Arnab K. Paul	CSIS	Reviewer of Cluster Computing Journal
Prof. Mainak Banerjee	Chemistry	Associate Editor Frontiers in Chemistry Editorial
Prof. Mainak Banerjee	Chemistry	Reviewer Several journals of publishing houses like ACS, RSC, Wiley, Sciedirect etc. Reviewed papers
Prof. Rajesh Mehrotra	Biological Sciences	Editorial board member for Nature Scientific Reports and PloS One
Dr. Varinder Singh	Mechanical Engineering	Reviewer Advances in Materials and Processing Technologies Reviewed 3 papers for the journal during this period
Dr. Varinder Singh	Mechanical Engineering	Reviewer Journal of Brazilian Society of Mechanical Sciences and Engineering Reviewed papers for the Journal
Dr. Varinder Singh	Mechanical Engineering	Committee Members in Indian Academic Committee International Conference on Industrial Engineering and Operations Management at NIT Warangal, Committee Member
Prof. K A Geetha	Humanities & Social Sciences	Reviewed a paper titled 'Devadasi - A Marginalised community in the History of Orissa' for International Journal of Women Studies in April 2022

# Introducing new faculty

Name	Department	Designation	Area of Research Interest
Dr. Kunal Kishore Korgaonkar	CS & IS	Assistant Professor, Gr-I	Computer Architecture & Systems
Prof. Rajan Sohansingh Bawa	Chem. Engg.	Visiting Professor	Chemical Engineering Biomedical Engineering
Dr. Sri Ram Shankar Rajadurai	EEE	Assistant Professor, Gr-I	Instrumentation, Control Systems, Scanning Probe Microscopy, Nanopositioning, Optical Motion Measurement, MEMS & Microsystems
Dr. Yadawananda Neog	Economics & Finance	Assistant Professor, Gr-I	Macroeconomics, Public Finance, Econometrics
Prof. Arnab Roy	Physics	Visiting Assistant Professor	Condensed Matter Physics (Expt.)
Dr. Sudhy S. Panicker	Mech. Engg.	Assistant Professor, Gr-I	Metal Forming, Manufacturing Technology, Warm & Hot Forming, Formability Characterization
Prof. Suman Kundu	Bio. Sci.	Sr. Professor & Director	Molecular Biology
Dr. Sudipta Chatterjee	Chemistry	Assistant Professor, Gr-I	Inorganic Chemistry
Dr. Woormileela Sinha	Chemistry	Assistant Professor, Gr-I	Bio Inorganic Chemistry
Dr. Uttara Basu	Chemistry	Chemistry	Inorganic Chemistry

Name	Department	Designation	Area of Research Interest
Dr. Saurav Bhattacharya	Chemistry	Assistant Professor, Gr-I	Inorganic Chemistry
Prof. Amiya Kumar Pani	Mathematics	Visiting Professor	Mathematics

## Introducing new Sr. non-teaching staff

Name	Department	Designation
Ajaykumar Rajpati Kewat	Student Welfare	Physical Education Instructor, Gr-II

## Editorial board

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Cover Photo (Left to right):Ms. Sahita Desai, Manager,Ms. Esha Desai, Senior Technician,Mr. Ebin Ephrem Elavathingal, General Manager, BITS BIRAC BioNEST,Prof. D M Kulkarni, Dean Administration, BITS Pilani, K K Birla Goa Campus,Prof. Souvik Bhattacharyya, Vice Chancellor, BITS Pilani,Prof. Suman Kundu, Director, BITS Pilani, K K Birla Goa Campus,Mr. Dilip Gaur, Advisor to Chancellor, BITS Pilani,- Prof. Mridula Goel, Faculty In-Charge,BITS BIRAC BioNEST.

