

Semester - II notes 2018-19

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 19th Issue of BITS-CAN magazine, full of events and achievements of our Campus community during the second semester of the academic year 2018-19. This semester too, we hosted several exciting events including conferences, seminars, workshops, expert lectures, annual festivals, etc., which contributed to enriching the experience of our BITS community.

The New Year was welcomed with the inauguration of the BITS BIRAC BioNest Innovation Lab set up with the financial support by BIRAC. Vice-Chancellor of Goa University, Professor Varun Sahni inaugurated it in the presence of Dr Manish Diwan, Head of Strategic Partnership & Entrepreneurship Development, BIRAC and other senior partners. In May, Dr Renu Swarup, Secretary of DBT and Chairperson of BIRAC, paid a visit to the Lab and appreciated the facility. Series of workshops and round-table discussions were held at the Innovation Lab aimed at familiarising potential beneficiaries of the facility.

MoUs with reputed institutions, such as the International Water Association, Netherlands; University of Porto, Portugal and University of Tartu, Estonia were signed to further the research and education. We also hosted the two-week Engineering Ethics Programme for the students of Texas A&M University, the USA for the second consecutive year.

Thirty-three research projects worth around Rs. 8.5 crores were sanctioned for various departments by government and non-government agencies during this semester. In addition to fulfilling teaching and research assignments, our faculty members were enthusiastically engaged in multiple initiatives including delivering invited lectures and conducting workshops at other institutions, presenting papers on their latest research at national and international events, and visits to renowned Indian and foreign institutions to establish and further the collaboration.

During this semester, around ten lectures by eminent speakers from India and abroad were delivered at our

campus. The cognitive neuroscience lab of the Department of Biological Sciences hosted and organised two international conferences. 4th international conference of 'ARWA: Association for Reading and Writing in Asia and 2nd international workshop on 'Design Thinking approaches in Open Community based Rehabilitation for People with Disabilities'. Department of Humanities and Social Sciences organised an international consultation workshop on the Role of Forest Ecosystems in Meeting Sustainable Development Goals in South Asia. Faculty members continue to be appointed on editorial boards and to review reputed international and national journals.

This semester's students' events – QUARK and SPREE along with TEDxBITSGoA were also held on the campus. Jam-packed sessions, workshops, main activities and cultural performances were appreciated by the audience. Numerous competitions, including on-stage and off-stage events, gripped the participants representing reputed institutions from across India during the weekend.

Our students continue to win accolades in India as well as abroad and make us proud. Two teams bagged first positions in Grand Finale of Smart India Hackathon organised by the MHRD. BITS Goa students' team also won the Goa Edition of Tata Crucible Campus Quiz, 2019. A two-student team secured first place for their design prototype namely 'Smart Sole' - an ingenious assistive device that aims to help people with neuropathic feet. Two students were awarded prestigious MITACS Globalink-Research Internship, sponsored by the Government of Canada for the summer of 2019. Several students won individual awards and prizes including Western Digital Scholarships for STEM of USD 2000, scholarship to participate in the Apple Worldwide Developers Conference (WWDC) 2019 at the USA. Eight students were awarded partial travel support grant by IPCD for conducting First Degree thesis in reputed foreign universities.

In addition to their academic accomplishments, our students are very proactive in serving the community around our campus through NIRMAAN – a student lead volunteer organisation. This year's Udaan - a sports festival for the differently-abled children across various schools in Goa was a massive success with over 150 students' participation. Besides this NIRMAAN organised blood donation camp, street plays, cloth collection drives, etc.

We thank the entire BITS community for their contributions and support in bringing out this issue of BITSCAN.

a confluence of ideas academia

BITS BIRAC BioNest Innovation Lab Inaugurated

A state-of-the-art 3500 sq. ft. BITS BIRAC BioNest Innovation Lab set up by BITS Pilani, K. K. Birla Goa Campus was inaugurated by Prof. Varun Sahni, Vice-Chancellor of Goa University on 3rd January 2019. The Lab is set up with a financial support of Rs. Three Crores from Biotechnology Industry Research Assistance Council (BIRAC), a not-for-profit Public Sector Enterprise, administered by the Department of Biotechnology (DBT), Government of India. In his inaugural address Prof. Sahni emphasized on the role of interdisciplinary research in creating innovations and welcomed joint research by Goa University and BITS faculty members and researchers.

This Innovation Lab would provide incubation support to the entrepreneurs in the verticals of healthcare and environment by providing them equipment, space and supporting facilities to test their ideas, prototype in the lab and take it to the market. In his introductory address, Director Prof. Raghurama G. stated that this facility would lead to innovations in terms of affordable healthcare and sustainable solutions to solve the pressing environmental problems of the country.

Prof. Mridula Goel, the In-charge of BITS BIRAC BioNEST invited scientists and innovators from across the State to actively participate in the regular trainings conducted on equipment like Spray Dryer, TOC, RT PCR, PCR, Gel-doc system, etc. The technical directors and board members of the Lab, Prof. Sunil Bhand, Professor of Chemistry and Dean, SRCD and Prof. Srikanth Mutnuri, Head, Department of Biological Sciences would also be available as mentors to our incubates.

Dr. Manish Diwan, Head of Strategic Partnership & Entrepreneurship Development, BIRAC, explained how the journey from ideation to commercialization involves synergic teamwork to harness mutual

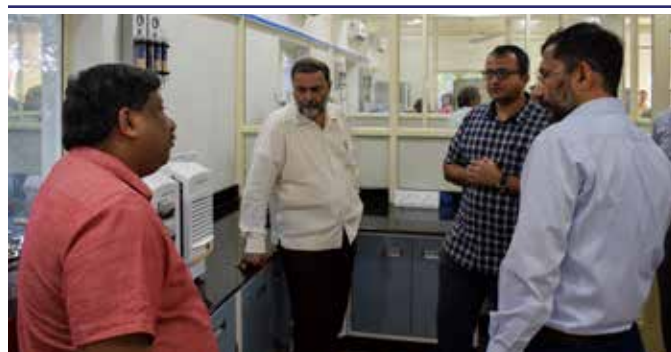
advantages from within India and abroad. The inauguration was followed by an illuminating panel discussion on “Opportunities in Healthcare” with Dr. N. Sriram, Director of Molbio Diagnostics, Dr. Shekhar Salkar, Head of Department of Oncology, Manipal Hospitals, Dr. Praveen Khullar, Head of Global Development Center, Sanofi-Synthelabo India Pvt. Ltd. and Mr. Vibhav Joshi, the co-founder of Sattva Medtech along with Dr. Diwan.

The Incubator currently has 4 physical incubates: Zycon Biosciences Pvt. Ltd (Dr. S. Kurade); Magellan Lifesciences (Dr. Abhiram); Epione Swajal Solutions (Dr. Anirban Roy); Soares Healthcare (Ms. Lourdes Soares) and two virtual incubates: BacTreat Environmental Solutions (Prof. Srikanth Mutnuri) and Sattva Medtech (Mr. Vibhav Joshi).

The details of the facility are available at <https://www.bionestgoa.com/> and <https://www.bits-pilani.ac.in/Goa/BITSBIRAC/Home>



Prof. Varun Sahni, Vice-Chancellor of Goa University, inaugurating the BITS BIRAC BioNest Innovation Lab



Prof. Srikanth Mutnuri, Head of the Department of Biological Sciences explaining the use of various

equipment to Prof. Varun Sahni, Vice-Chancellor of Goa University; Dr. Shekhar Salkar, Head of Department of Oncology, Manipal Hospitals and Prof. Raghurama G., Director of BITS Pilani Goa Campus.

Visit by Dr. Renu Swarup, Secretary, Department of Biotechnology, Government of India



Dr. Renu Swarup, Secretary, Department of Biotechnology, Ministry of Science & Technology, Government of India visited BITS BIRAC BioNEST Innovation Lab facility on 27th May 2019. Dr. Swarup is also the Chairperson of Biotechnology Industry Research Assistance Council, (BIRAC) a Govt. of India Enterprise. Dr. Swarup appreciated the infrastructure and the lab facility. She expressed her keenness to make these facilities available to students and researchers from across the State.

Prof. Mridula Goel, In-charge, BITS BIRAC BioNEST, presented the achievements of BioNEST in the past two years to the guests. Later Dr. Renu Swarup participated in the interaction session with the Director, Prof. Raghurama G., Technical Directors of BITS BIRAC BioNEST, Prof. Sunil Bhand and Prof. Srikanth Mutnuri and the Incubates. She also planted a tree sapling near the innovation lab.

memorandum of understandings with foriegn universities

BITS Pilani signed MoU with International Water Association (IWA)



BITS Pilani and International Water Association (IWA) signed a Memorandum of Understanding (MoU) to further the collaboration between the two organisations. Prof. Kala Vairavamoorthy, Executive Director, IWA, The Hague, Netherlands, visited the Goa Campus to interact with the senior management and sign the MoU on 10th January 2019. BITS Pilani team was led by its Vice Chancellor Prof. Souvik Bhattacharyya along with the Director of the Goa campus, Prof. Raghurama G. and Deans, Associate Deans, Professors and Researchers.

IWA Programmes establish change-agendas on key themes on water that contribute to sustainable development; these programmes are: Basins of the Future, Cities of the Future and Water and Sanitation Services. In shaping and furthering these agendas, IWA engages with a variety of individuals and organisations through projects, events and publications.

BITS Pilani and IWA share a common objective to support the achievement of the Sustainable Development Goals by 2030, and the need to strengthen professional capacity in the sector to achieve global sustainable development. BITS Pilani and IWA also recognize the important catalytic value of promoting positive change in service provision through training, education, knowledge development and research with and through a range of audiences in low and middle income countries.

Through this MoU, both BITS and IWA will develop a range of activities that leverage each other's comparative advantages to support the achievement of the SDG targets goal 6: Clean Water and Sanitation.

An inter-institutional agreement is signed with the **University of Porto, Portugal for the Erasmus+ program and the MOBILE UNLIMITED program** has been approved under this program.

Renewed MoU with the **University of Tartu, Estonia for Erasmus+ program**. The department of Chemistry of Goa campus has become an associate partner with the University of Tartu for the Excellence in Analytical Chemistry, which is an Erasmus Mundus Joint Master Degree programme.

Renewed MoU with **Ontario India Program**. Under this program two of our First Degree students pursued their study for a semester in the York University, Canada, under Semester Abroad Program scheme and one student from Carleton University, Canada, pursued her study for a semester in BITS Goa.

seminars/conferences/workshops/ training programs

Second Two-Week Engineering Ethics Programme held for students of Texas A&M University, USA

The Goa campus hosted the second two-week **Engineering Ethics Programme** organized for 23 students of Texas A&M University, USA, from 25th Dec 2018 to 13th Jan 2019. The faculty members of Texas A&M University, Prof. Debjyoti Banerjee and Mr. John Curry O'Day, jointly conducted this course for their students at BITS Pilani, Goa Campus.

Third Annual Conference of the Association for Reading and Writing in Asia

Cognitive Neuroscience Lab of the Department of Biological Sciences hosted the **3rd Annual Conference of the Association for Reading and Writing in Asia**

(ARWA) on 28th February and 1st March 2019. This year's theme of the conference was **"Dyslexia."**

Local organizing chair, Prof. Veeky Baths, Associate Professor, Department of Biological Sciences and Prof. Malatesha Joshi from the Texas A&M University (USA) on behalf of ARWA welcomed the participants. The Director, Prof. Raghurama G., presented encouraging introductory thoughts while Prof. Catherine McBride, President of ARWA, delivered the inaugural address.



The two-day event brought together around 120 scientists and academic scholars around the world to present and discuss their research findings in the field of literacy, linguistics, reading and writing disabilities. The presentations were focused on the impact of multilingual environments on literacy and learning. Focus was also given to understanding the problems in reading and writing for children suffering from different forms and severity of dyslexia. The conference also included Poster sessions with 23 posters presented by various scientists.

The themes for the presentations were Spelling, Assessment, Technology in Education, Bilingualism, Memory and Fluency, Bridging gap between research and education, Attention and executive functions in reading, Technological interventions for struggling readers, Reading writing relations, Cross-linguistic studies, Reading comprehension, Learning mechanisms, Orthographic processing, Diglossia, dialects and multilingualism, Curriculum and instruction, Orthographic awareness and spelling and Reading across cultures.

Second Workshop on 'Open Innovation in Community Based Rehabilitation (CBR) for People with Disabilities (PWD)' and Interdisciplinary Design Thinking Hackathon



The Cognitive Neuroscience Lab of the Department of Biological Sciences organized the 2nd workshop on **'Open Innovation in Community Based Rehabilitation (CBR) for People with Disabilities (PWD)'** and an Interdisciplinary Design Hackathon from 15th to 17th March 2019. The Hackathon and workshop were organized in collaboration with the Leeds Business School of University of Leeds and was sponsored by Leeds Social Sciences Institute and the Economic and Social Research Council (ESRC), United Kingdom.

After organising the first workshop on Open Innovation in CBR in September 2018, the second workshop focused on the progress in the field since then. Different members presented and discussed their progress in the field. Plan of action for the future was also designed with an aim to meet for the third iteration of the workshop by the end of the year. The workshop was moderated by Dr. Samit Chakrabarty and Dr. Tabish Zaman from the University of Leeds.

The Design Thinking Hackathon was targeted at presenting the participants with real problems and asking them to come with a solution using Design Thinking. Dr. Emilee Simmons from the University of Leeds organized the Hackathon to 32 participants. The problems were designed by the workshop members with each group having a mentor to elaborate on the problem and discuss solutions. In addition, dedicated mentors were also present to help the participants in implementing the design thinking approach in creating the solution.

Mr. Mohan Sundaram, the Founding CEO and Direc-

tor of Artilab, the first Innovative Disability Focused Incubator participated in the workshop and was a mentor to the participants. He provided valuable inputs to both the members of the workshop and the participants at the Hackathon.

Ms. Ira Singhal, who is the topper of the UPSC Civil Services Exam for the year 2014, was also present at the workshop and Hackathon. Currently serving as the Deputy Commissioner at the North Delhi Municipal Corporation, she discussed different initiatives the government was taking to help rehabilitate people with disabilities into the normal workforce. She shared her perspective on the problems faced in India with the Hackathon participants which was important to create a more relevant and implementable solution to the problem.

Prof. Veeky Baths of the Cognitive Neuroscience Lab introduced and demonstrated electric wheelchair movement using the signals produced in the brain. He also thanked all the participants and workshop members for their dedication towards the cause of rehabilitation for people with disabilities.

International Consultation Workshop on the Role of Forest Ecosystems in Meeting Sustainable Development Goals in South Asia



The forest ecosystems specialist group of the Commission on Ecosystem Management of the International Union for Conservation of Nature (IUCN) and BITS Pilani, K. K. Birla Goa Campus co-organized an international consultation workshop on 'Role of forest ecosystems in meeting SDGs in South Asia' on 9th May 2019 at BITS Pilani Goa Campus. The workshop

was funded by the 'Commission on Ecosystem Management', IUCN; Goa regional office of NABARD; and Government of Goa. The workshop was coordinated by Dr. Rajiv Kumar Chaturvedi, Assistant Professor at the Department of Humanities and Social Sciences and Dr. Himlal Baral (CIFOR, Indonesia).

This workshop aimed at understanding the linkages between forest ecosystems and the Sustainable Development Goals (SDGs) and other environmental goals such as Paris Agreement goals on Climate Change, and Bonn Challenge on recovery of degraded land via afforestation/reforestation in South Asia. More specifically, the workshop aimed at understanding how forest resources (through multiple use forest resource management tools and practices) can ensure sustained production and supply of Forest Ecosystem goods and services to generate multiple dividends such as biodiversity conservation, poverty reduction, Ecosystems based adaptation, mitigation, Disaster Risk Reduction and gender inclusive development thus meeting SDG 1 (No poverty), 5 (Gender equality), 12 (Responsible production and consumption), 13 (Climate Action) and 15 (life on land). One of the key outputs of the workshop was to discuss a Technical Report on 'Role of forest ecosystems in meeting SDGs and Climate Goals in South Asia' being prepared by the Forest Specialist Group of IUCN/CEM.

Further, the workshop connected global science to local needs and the participants took this opportunity to discuss Goa's State Action Plan on Climate Change. The workshop brought together about 50 global conservation experts and local level practitioners of forests and biodiversity conservation such as members of local Village Biodiversity Committees (VBCs) from Goa, with the aim to link science with policy and local level intervention.

The Department of Chemistry celebrated its 'Department Day' at BITS Pilani, Goa Campus

The Department of Chemistry celebrated its 'Department Day' by organising, "Recent Trends in Chemistry: Students' Meet 2019" on the 3rd of March, 2019. Around 60 participants from BITS, faculty members and M.Sc. students of Goa University and its affili-

ated colleges participated in this 3rd edition of the students' meet.



Prof. G. M. Naik, Dean, Faculty of Natural Sciences, Goa University, and Dr. Kamlesh Pai Fondekar, Head, Technology & Engineering, Deccan Fine Chemicals, graced the inaugural function as the Chief Guest and the Guest of Honour respectively. Prof. Raghurama G., Director of BITS Pilani, Goa Campus and Prof. Sunil Bhand, University wide Dean, Sponsored Research & Consultancy Division also presented their views during the inaugural function.

Prof. Anjan Chattopadhyay, Head, Department of Chemistry, presented a detailed overview of the department activities for the knowledge of the participants. The programme also included invited talks and, oral and poster presentation competitions. The programme concluded by presenting Gold, Silver and Bronze medals to the winners of competitions.

Roundtable of Startup Promotion Cell and Incubation Managers in Goa

BITS BIRAC BioNEST organized a roundtable of Start-up Promotion Cell and Incubation Managers in Goa on 15th May 2019 to discuss on collective efforts for creating a larger startup ecosystem in the State. Incubator CEOs and teams from FIIRE, Don Bosco Engineering College, Government incubators, EDC-Ignite and CIBA, Atal Innovation Center-GIM and BITS BIRAC BioNEST shared their experiences in supporting startups in Goa. It was decided that co-incubation could create synergies and strengthen the startup ecosystem in Goa. The incubators agreed to work out a plan to implement the same.

The Startup Promotion Cell indicated that only 77 startups are listed with them till date. It was decided to organize camps at different incubators to register startups across the State. This helps startups to ben-

efit from the programmes and policies provided by the Government to take them forward.

Workshop on BIG Scheme

BITS BIRAC BioNEST organized a workshop on BIRAC's Biotechnology Ignition Grant (BIG) scheme on 17th May 2019. Ms. Aditi Kumar from BioNEST at IIT Kanpur informed the participants that as one of the BIG partners they provide technical guidance and business mentoring to applicants. Some of the participants expressed their intent to submit proposals for the upcoming deadline of July 01, 2019.

Five-day workshop on 'Basic Molecular Biology Laboratory Tools and Techniques'



BITS BIRAC BioNEST organized a five-day workshop on '**Basic Molecular Biology Laboratory Tools and Techniques**' from 9th to 13th July, 2019.

The workshop was conducted by the faculty members and doctoral students of BITS Pilani's Department of Biological Sciences. The Course Director, Dr. Malabika Biswas, and Resource Persons, Dr. Arnab Banerjee & Dr. Indrani Talukdar, designed the workshop and conducted the sessions. Prof. Anasuya Ganguly and Prof. Sumit Biswas were invited as guest speakers. Our Ph.D. scholars, Vijay, Fiona, Pranjita & Pooja also conducted few hands-on sessions.

The faculty members, research scholars and the students from BITS as well as various institutes from Goa and neighbouring States participated in this workshop. Participants from reputed educational institutes such as Kamaraj College of Engineering &

Technology, Tamil Nadu; St. Aloysius Autonomous College, Mangaluru; NMAM Institute of Technology, Udipi, and from our own campus participated in the hands-on workshop. Institutions from Goa such as Chowgule College of Arts & Science; Govt. College of Arts, Science & Commerce, Khandola; Dhempe College of Arts & Science; and Goa College of Pharmacy nominated their faculty members and students.

The workshop focused on basic molecular biology theoretical knowledge with emphasis on hands-on training through experimentation. The workshop was intended to enable participants to clone and over express the gene of interest themselves. Participants received the training with enthusiasm and expressed keenness to use the BioNEST for future projects.

Three-day workshop on 'Industrial Bioprocess and Bioreactor Operations'



BITS BIRAC BioNEST, organized a three-day workshop on 'Industrial Bioprocess and Bioreactor Operations' from 25th to 27th July, 2019.

Dr. Vivek Rangarajan, Assistant Professor, Department of Chemical Engineering, designed the workshop and conducted the sessions. He was supported by Ph.D. scholars and post graduate students—Neela Gayathri, Vinoth Kannan, Divya and Partha Sarathi. The faculty members, research scholars and students from BITS as well as various institutes from Goa and neighbouring States participated in this workshop. Participants from outside Goa represented Institute of Chemical Technology (Mumbai), IIT Guwahati, Kalasalingam Academy of Research and Science (Tamil Nadu), NMAM Institute of Technology (Udipi), Yenepoya University (Mangaluru), Dapoli Urban Bank Senior Science College (Dapoli). Participants from

Goa represented Parvatibai Chowgule College of Arts & Science; Govt. College of Arts, Science & Commerce; Dhempe College of Arts & Science and PES R.S.N College of Arts and Science.

The workshop focused on bioprocess theoretical knowledge with emphasis on hands-on training through experimentation in bioreactor. Participants received the training with enthusiasm and expressed keenness to use the BioNEST for future projects.

Teaching Learning Centre (TLC)

TLC organized the following workshops:

Date	Topic	Speaker
11th January 2019	How and Why of Building Case Studies in Pedagogy	Prof K. Bindumadhavan Associate Professor, Management-Finance, Off Campus Programs, BITS Pilani, Hyderabad Campus
1st March 2019	The Art of Questioning	Dr. Pankaj Sharma Dept. of Biological Sciences, BITS Pilani, Pilani Campus
30th March 2019	Connecting to, Communicating with, and Caring for Students	Dr. Manoj Kannan BITS Pilani, Pilani Campus

TLC also organised Intensive Teaching Workshop and Micro-Teaching Session for new faculty members on 29th March and 20th April, 2019 respectively.

Center for Innovation, Incubation and Entrepreneurship (CIIE) programmes

- BITS BIRAC BioNest Innovation Lab, inaugurated on 3rd January 2019, currently has **four physical incubates**: Zycon Biosciences Pvt. Ltd. (Dr S Kurade); Magellan Lifesciences (Dr Abhiram); Epione Swajal Solutions (Dr Anirban Roy); Soares Healthcare (Ms. Lourdes Soares) and **two virtual incubates**: BacTreat Environmental Solutions (Prof. Srikanth Mutnuri) and Sattva Medtech (Mr. Vibhav Joshi).
- Two Indian patent applications were filed by Prof. Srinivas Krishnaswamy, Professor in Department of Chemical Engineering and Mr. Rathnagiri Sairam Kaushik, an M.E. student in the Department of Mechanical Engineering.
- Two teams from BITS Pilani, Goa Campus, won Grand Finale of MHRD's Smart India Hackathon,

2019. Team Appthletes won Rs. 1 lakh in their problem statement under ISRO and Team Zenith won Rs 50,000 in their problem statement under the Ministry of Railways.



Team Zenith



Team Appthletes

distinguished lectures

No.	Date	Title of the Talk	Speaker's Name	Speaker's Designation / Affiliation	Organised by Department of
1.	9th Jan 2019	Emergence of fractional derivatives in modelling of complex media	Dr. Vikash Pandey	Researcher, Center for Ecological and Evolutionary Synthesis (CEES), Department of Biosciences, University of Oslo, Norway	Mathematics
2.	10th Jan 2019	Opportunities for entrepreneurship and Start-ups in India	Mr. Ramendra S Baoni	Founder and Chairman of Bisquare Systems Pvt. Ltd	EEE
3.	16th Jan 2019	Molecular imaging; limitations and innovations	Prof. Pritam Deb	Department of Physics, Tezpur University	Physics
4.	8th Feb 2019	Tailoring Non Abelian Lattice Gauge Theory for Digital Quantum simulation	Dr. Indirakshi Raychowdhury	Postdoctoral Fellow “Indian Association for the Cultivation of Science, Kolkata	Physics
5.	18th Feb 2019	Examples of absolutely simple Abelian surfaces over number fields whose reductions at all primes are isogenous to square of some elliptic curve	Prof. Vijay M. Patankar	Associate Professor, School of Physical Sciences Jawaharlal Nehru University, New Delhi	Mathematics
6.	6th Mar 2019	"Wind Electrical Systems", on using the software tool MeteoDyn, which is used for modeling Wind farms	Mr. Sachin Bhandare	Industry Expert	EEE
7.	29th Mar 2019	Underwater Acoustic Sensor Network	Dr. Konstantin Kebkal	CEO/Chief Scientist, Evologics, Germany	EEE
8.	29th Mar 2019	Existence Questions in Discrete Mathematics	Prof. Amitava Bhattacharya	School of Mathematics, Tata Institute of Fundamental Research (TIFR), Mumbai	Mathematics
9.	2nd April 2019	Elementary estimates on primes	Dr. Kaushik Majumder	Assistant Professor, Department of Mathematics, IIT Goa	Mathematics
10.	16th April 2019	Natural Inflation and Inflationary Gravitational Waves	Dr. J. Selvaganapathy	Postdoctoral Fellow - Physical Research Laboratory, Ahmedabad	Physics

alumni affairs

Distinguished Alumnus Award 2019

BITS Pilani Distinguished Alumnus Award' in 2019 awarded to the following alumni:

No.	Name and Affiliation	Category
1.	Prof. Bir Bhanu, Bourns Presidential Chair in Engineering; Distinguished Professor of Electrical and Computer Engineering at University of California, Riverside, USA	Academia and Research
2.	Prof. Ramanan Laxminarayan, Founder and Director of the Center for Disease Dynamics, Economics & Policy (CDDEP), Washington DC, USA	
3.	Prof. Arun Abraham Ross, Professor, Department of Computer Science and Engineering and Director, i-PRoBe Lab, Michigan State University, USA	
4.	Prof. Umesh Garg, Professor, Experimental Nuclear Physics, University of Notre Dame, USA	
5.	Prof Arun Kumar Sharma, Deputy Vice-Chancellor and Vice President (Research and Innovation), Queensland University of Technology, Australia	
6.	Mr. Manu Sawhney, CEO, International Cricket Council (ICC) and Independent Director, Manchester United PLC, UK	Corporate Leadership
7.	Mr. Sanjay Jalona, Chief Executive Officer, L&T Infotech, India	
8.	Ms. Akila Krishnakumar, Chairperson, Social Venture Partners, Bangalore and former President, Global Solution Centers, SunGard	
9.	Mr. Amitabh Chaudhry, Managing Director and CEO, Axis Bank, India	
10.	Mr. Veerendra Raj Mehta, Trustee, Sir Dorabji Tata Trustee, World Trade Centre and Executive President, Bhagwan Mahaveer Viklang Sahayata Samiti	Entrepreneurship
11.	Dr. Bhagwati P. Agarwal, Founder and President, Sustainable Innovations Inc, USA	

Alumni Research Talks 2019



A first of its kind event, Alumni Research Talks 2019 was organized by the Alumni Relations Cell on 12th January, 2019. The event featured interactive sessions by five eminent alumni who shared their stories of success, and delved a bit into their research interests. The event was graced by the Director Prof. Raghurama G., Ms. Sai Kothai, d/o the late Prof. S.S. Ranganathan and Mr. N.S. Parthasarathy, Executive Vice Chairman and COO of Mindtree Ltd. The five eminent alumni speakers included:

- Prof. Umesh Garg (Nuclear Physicist, University of Notre Dame, USA)
- Dr. Surendra Pal (Program Director, ISRO, Banga-

lore)

- Prof Sharmila C. Chatterjee (Professor, MIT, USA)
- Mr. Sanjay Padode (Secretary, Centre of Developmental Education, IFIM Institutions)
- Prof. Govindan Rangarajan (Professor of Mathematics, IISc Bangalore)

Besides the BITS students, students from other colleges, including IIT Goa, GEC, Agnel Polytechnic and the Padre Conceicao College of Engineering attended the talks.

Prof. Suresh Ramasamy Memorial Award 2018-19

The project idea 'Design optimization of automobile crash box to improve performance test' done by Muskan Taneja (2016A4PS0137G) was selected for Prof. Suresh Ramaswamy Memorial Award 2018-19. Prize money of Rs 40,000 was awarded to be utilized on further work in the project.

Mantra Awards for 2018-19

Alumni Relations Cell in partnership with CEL and BITSAA International awarded the Mantra awardees. The Mantra Awards were instituted to recognize and reward outstanding students who have demonstrated extraordinary leadership potential and/or entrepreneurial initiative.

The awardees were:

- Outstanding Leadership – Naveen P.S. (2015A1B30716G)
 - Entrepreneur of the Year – Shardul Walwadkar (2014B3A80798G)
 - Social Leadership – Apoorv Anand (2015B1A30766G)
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Prof. S. S. R. Memorial Teaching Excellence Award 2018

Prof. SSR Memorial Teaching Excellence Award felicitation ceremony took place just after the Alumni Research Talks 2019. An accolade that is bestowed to the Best Teacher was awarded to Prof. Biju K. Raveendran, CS & IS Department, BITS Goa, for this

year and included a cash prize of one lakh rupees. In his acceptance speech, Prof. Biju, in accordance with the theme of the event, spoke about how he was always inspired by his own professors, and that the best teachers always remember to teach from heart, and never from the mind. Ms. Sai Kothai also spoke about the award, in remembrance of her late father, as did Mr. N. S. Parthasarathy on further work in the project.



Research Scholarship 2018-19

One of our alumni Mr. Satish Sankaralingam initiated a research scholarship for B.E. students and an amount of Rs. 15,000/- is awarded every year as recognition to their research work. This year, the winners of Research Scholarship are:

- Manan Sarupria (2015A1PS0734G) for the papers "Environmental Impact Assessment Studies for Mining Area in Goa, India Using the New Approach" and "A Study on the Role of Additives In Non-Cyanide Baths for the Fabrication of Anisotropic Metallic Nanostructures"
 - Sahir Gill (2015A3PS0229G) for the paper "Bounds for Region Containing All Zeros of a Complex Polynomial"
 - Sanjeev Sripadraj Murthy (2014A3PS0335G) for the paper "SMAproxLib: Library of FPGA-based Approximate Multipliers"
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Embryo & On-campus Talks for the academic year 2018-19:

No.	Date	Title of the Talk	Speaker's Name
1	11 th Jan 2019	Talk on Entrepreneurship	Mr. N Parthasarathy
2	18 th Jan 2019	Talk on Microsoft Research Fellow Program	Mr. Anmol Panda
3	22 nd Jan 2019	BITS2Startup	Mr. Dheeraj Bhaskar Mr. Bala Kamallakharan Mr. Piyush Kumar
4	24 th Jan 2019	Talk on Loop Quantum Gravity [Embryo]	Mr. Martin Bojowald
5	31 st Jan 2019	Talk on SNAzzy project	Mr. Amit Nanavati
6	5 th Feb 2019	BITS2Civil	Mr. Ashutosh Garg Mr. Anmol Bedi Mr. Kshitij Singhal
7	12 th Feb 2019	CAT Champs	Mr. Kshitij Gangal Mr. Anshuman Paranjape Mr. Divij Sinha
8	18 th Feb 2019	Being BITSian [Embryo]	Mr. Roger Narayan
9	21 st Feb 2019	Talk on PPO [Embryo]	Ms. Kanupriya Maheshwari Mr. Abhinav Goyal Mr. Pranav Mohan Mr. Dhruv Toshniwal
10	2 nd Mar 2019	BITS2BSchool	Mr. Sandeep Murishetty Mr. Apurv Chaturvedi Mr. Saurabh Sachdeva
11	18 th Mar 2019	Being BITSian [Embryo]	Mr. Anupam Maurya
12	25 th Mar 2019	Talk on Trajectory in Academia	Mr. Ashok Ajoy
13	11 th Apr 2019	Talk on Tech.Art as a career for Engineers	Mr. Shammi Raj Balla Mr. Pulkit Budhiraja

Alumni Outreach Programme

Prof. Veeky Baths, Associate Dean, Alumni Relations Cell, visited Europe and met with alumni located at different countries for better alumni connect and fund raisings:

Mr. Gurdeep Singh: Met at Heidelberg, Germany



Mr. Singh is a Ph.D. student at University of Heidelberg and is funding a scholarship “Summer Internship Assistance” for the on-campus students to conduct summer research at educational/research institutes across India (including BITS’ campuses) along with his alumni friends. Mr. Singh has promised to pool funding from his alumni friends for starting a Chair Professorship in Goa Campus.

Mr. Govind Upadhyay: Met at Zurich, Switzerland

Mr. Upadhyay is the founder of “LEDSafari”, a clean-tech social start-up based in Lausanne, Switzerland, that develops innovative digital products to help

solar companies and organizations to manage their staff and assets. Mr. Upadhyay has promised funding for initiating a scholarship to a students and also for the infrastructure developments of the institute.



Mr. Praharsh Pai Raikar: Met at Gent, Belgium

Mr. Raikar is a R&D Professional working at VITO, Belgium.

Mr. Hemaditya Malla: Met at Nijmegen, Netherlands

Mr. Malla is a Master’s student at Eindhoven University of Technology.

Regular Activities

Other regular activities like Convocation, bi-annual Director’s Tea Party, Batch-snap sessions, souvenir distributions, bringing out the yearbook ‘Melange’ for out-going students were carried out smoothly.

enriching the learning experience visits by faculty

international visits

Prof. Angshuman Sarkar, Department of Biological Sciences delivered an invited lecture on nanotoxicity in ‘2019 International Conference on Graphene and Novel Nanomaterials (GNN2019)’ held in Bangkok from 8th to 11th July 2019.



Dr. Anil Kumar, Department of Mathematics delivered a talk entitled 'A Mixed Finite Element Method for Elliptic Optimal Control Problems Based on Biorthogonal Systems' in the 9th International Congress on "Industrial and Applied Mathematics (ICIAM-2019)" held at Campus de Blasco Ibáñez of the Universitat de València, València, Spain from 15th to 19th July 2019. He also chaired a paper presentation session.



Prof. Anjan Chattopadhyay, Department of Chemistry, delivered an invited talk entitled 'Computational studies on some photochemical reactions involving conical intersections' at the Theoretical Chemistry Group, Institute of Physical Chemistry, University of Heidelberg, Germany on 8th July 2019.

During this visit, Prof. Chattopadhyay made a presentation at the 9th MQM (Molecular Quantum Mechanics) conference held at Kongresshaus Stadthalle, Heidelberg and also undertook collaborative research with Prof. Horst Köppel, Theoretical Chemistry Group, Institute of Physical Chemistry, University of Heidelberg.

Dr. Gauranga Charan Samanta, Department of Mathematics presented a paper entitled 'Traversable wormholes in modified gravity' in 'Asian-Pacific Winter School and Workshop on Gravitation and Cosmology' held at Yukawa Institute for Theoretical Physics, Kyoto University, Japan from 11th to 15th February 2019.

Dr. Gauranga Charan Samanta visited Institute of Space Science, Barcelona, Spain under University exposure program for research collaboration work with Prof. S. D. Odintsov and Prof. E. Elizalde, 21st May to 15th July 2019.

Prof. Mridula Goel and **Ms. Sheetal Thomas**, Department of Economics, presented a paper entitled 'Use of cognitive processes in handwriting to understand financial decision making' at the 15th Annual NeuroPsychoEconomics Conference held at LUISS University, Rome, Italy on 6th – 7th June 2019.



Prof. Narendra Nath Ghosh, Department of Chemistry, was invited to Department of Chemistry at the University of Tennessee, Knoxville, USA as a

Visiting Professor to conduct collaborative research with Professor C E Barnes during 20th May-19th July 2019. During this visit Prof. Ghosh delivered a special seminar entitled 'Synthesis of Reduced Graphene Oxide- nanoparticle based Multifunctional Nanocomposites and their Applications as Versatile Catalysts and Supercapacitor' on 17th July 2019.

Prof. Narendra Nath Ghosh was invited by the University of Tartu, Estonia, Estonia to participate in an Erasmus+ workshop during 25th February- 1st March 2019.

Prof. Narendra Nath Ghosh was invited to visit the Department of Chemistry of Cardiff University, UK during 21st to 26th January 2019 to establish collaboration and formulate a project for Global Challenges Research Fund.

Prof. Rajesh Mehrotra, Department of Biological Sciences attended the European Workshop on Plant Chromatin held in Cologne, Germany from 13th to 15th June 2019.

Prof. Rajesh Mehrotra delivered a talk entitled 'The role of Chromatin architecture in different stress responses' at the Department of Molecular Plant Science, University of Edinburgh, UK.



Dr. Rajorshi Sen Gupta, Department of Economics along with **Mr. Mohammed Anjal**, a dual degree (CS and Economics) student presented a paper titled 'Estimation of Value of Time of Toll road users in India' at International Transportation Economics Association (ITEA) conference, held in Paris School of Economics from 12th to 14th June, 2019.



Prof. Reena Cheruvalath has been a Visiting Scholar at the School of Creative Science and Engineering, University of Waseda, Japan May-July, 2019.

Prof. Saroj Sundar Baral, Department of Chemical Engineering visited Chemical Engineering Group at the University of Aberdeen, Scotland from 15th May to 11th July 2019 as a part of University Immersion Program.



Dr. Arnab Banerjee, Dept. of Biological Sciences, was invited to deliver a lecture in the 3rd Interna-

tional Symposium on Embryonic Diapause, held from 2nd to 6th June 2019 and organized by Animal Physiology dept., ETH Zurich, Ascona, Switzerland.



Prof. Veeky Baths, Department of Biological Sciences, was invited for a research visit to the Cultural Brain group at the Max Planck Institute of Psycholinguistics, Nijmegen, Netherlands, between 28th June and 15th July, 2019.

Prof. Veeky Baths was invited to give a talk titled "Using EEG and Graph theory to decipher consumer choice and consumer behavior" at the University of Ghent on the 8th of July, 2019.

Prof. Veeky Baths presented a paper titled "Study of Motor imagery based Multiclass BCI with special focus in same limb movement" at the 18th IEEE International Conference on Cognitive Informatics & Cognitive Computing (IEEE ICCI*CC 2019) held between the 23rd and 25th of July, 2019 at Leonardo of Politenico di Milano University, Milano, Italy

invited talks/ workshops by faculty at other indian institutes

Dr. Anil Kumar, Department of Mathematics delivered an invited talk entitled 'A mixed finite element method for elliptic optimal control problems using a

three-field formulation' in 4th International Conference on "Recent Developments in Theory, Computation & Application of Differential Equations" held at Department of Mathematics, South Asian University, New Delhi from 21st to 23rd January 2019.



Dr. Anil Kumar delivered an invited talk entitled 'A Fourth-Order Orthogonal Spline Collocation Method to Fourth Order Boundary Value Problems' in International Conference on "Differential Equations and Control Problems: Theory, Modelling and Computation (ICDECP19)" held at the School of Basic Sciences, Indian Institute of Technology, Mandi, Himachal Pradesh from 17th to 19th June 2019. He also chaired a paper presentation session.



Prof. Anjan Chattopadhyay, Department of Chemistry delivered an invited talk entitled 'Oxaziridine and Lactam Conversion Pathways of Some Cyclic Nitrone

Systems' at the 16th TCS (Theoretical Chemistry Symposium), held at BITS Pilani, Pilani Campus from 13th to 16th February 2019.



Prof. Kundan Kumar, Department of Biological Sciences made a presentation entitled 'Plant Aquaporins: Understanding their role in Metalloids Tolerance and Transport' at the seminar on Novel Vistas in Plant Sciences organized by Botany Department, Goa University on 25th January, 2019.

Prof. Narendra Nath Ghosh, Department of Chemistry delivered an invited talk entitled 'Novel Synthetic Methodologies for Preparation of varieties of Nanostructured Materials and their Applications' at the International Conference on Nano-materials for Environmental Applications (NEA 2019) held at Goa Science Centre, Goa on 6th – 7th March 2019.



Prof. Rajesh Mehrotra, Department of Biological

Sciences delivered a plenary talk in IIIE Goa chapter on Green revolution and precision agriculture on 28th January 2019.

Prof. Rajesh Mehrotra delivered an invited talk entitled 'Seed storage Protein gene' in National Seed Congress at Institute of Agricultural Sciences held from 19th to 21st February 2019.

Prof. Rajesh Mehrotra delivered a plenary talk on 'ACGT element and its role in Stress tolerance' at Saurashtra University.

Prof. Rajesh Mehrotra delivered a talk on 'How to design smart question paper' in the 3rd National Teacher's Congress held from 3rd to 6th January 2019 at Pune.

Prof. S D Manjare, Department of Chemical Engineering delivered an invited talk entitled 'Impact of Air Pollution on Human Beings' at the annual meeting of Indian Medical Association, Mormugao branch on 7th March 2019.

Prof. S D Manjare delivered a talk on 'Quantification of the Environmental Impact of Water Pollutants Using Fuzzy Comprehensive Model' during Indo-German Joint Scientific Workshop on Membranes for Water and Energy organized by CSIR-Central Salt and Marine Chemicals Research Institute held at Bhavnagar, Gujarat from 18th to 20th February 2019.

faculty achievements

Prof. Narendra Nath Ghosh, Department of Chemistry received a Visiting Scholar Award to visit the Department of Chemistry of the University of Tartu, Estonia to teach a course entitled 'Nanomaterials and Nanotechnology and their applications' in the Analytical Chemistry for Excellence in Analytical Chemistry program, which is an Erasmus Mundus Joint Master Degree programme.

Prof. Narendra Nath Ghosh is in the top 10% of highly cited authors in the General chemistry portfolio of journals published by the Royal Society of Chemistry UK.

Dr. Rajiv Kumar Chaturvedi, Department of Humanities & Social Sciences co-authored a paper published in Nature Sustainability titled 'China and India lead in greening of the world through land-use management'. The paper received 31 citations within 6 months of publication. In terms of Altmetric score this paper is ranked 1st of the 42 tracked articles of a similar age in the journal Nature Sustainability. Further this paper is ranked 65th of the ~ 3 Lakh tracked articles of a similar age in all journals, world over.

Prof. Reena Cheruvalath, Department of Humanities & Social Sciences was awarded ICSSR 'Data Collection Abroad Fellowship' to do research in the University of Kyoto, Japan, May-July 2019.

Prof. Reena Cheruvalath received JSPS (Japan Society for the Promotion of Science), Grant-in-aid for Scientific Research on 'Language, Culture and Critical Thinking: The possibilities of measuring objectives with task,' Role: Co-investigator (July, 2019).

Dr. Arnab Banerjee, Dept. of Biological Sciences has received "Membership in Reproduction and Endocrinology, SRBCE, 2019" award From the Society for Reproductive Biology and Comparative Endocrinology, India in recognition of his research contributions in the field of mammalian reproductive physiology.



student achievements

Two teams bagged first positions in Grand Finale of Smart India Hackathon, 2019

Two teams representing Goa Campus bagged first positions in different categories in the **Grand Finale of Smart India Hackathon, 2019 (SIH, 2019)**; one of the world's biggest Hackathon, held at 48 centers across India on 2nd- 3rd March 2019 and organised by MHRD, Government of India.

Team ZENIITH, comprising of Ahan M R, Vedashree Kulkarni, Gaurav Sangle, Aryan Agarwal and Sanket Badgujar, won a cash prize of Rs. 50,000/- in their problem statement under the Ministry of Railways at Nagpur.

Team APPTHLETES won a cash prize of Rs. 1,00,000/- in their problem statement under ISRO at Ahmedabad. The team comprised of Gargi Balasubramaniam, Adithya R., Abhiraj Hinge, Mayank Manuja, Pranav Agarwal and Samarth Jain.

Smart India Hackathon 2019 is a nationwide initiative to provide students a platform to solve some of pressing problems we face in our daily lives, and thus inculcate a culture of product innovation and a mindset of problem solving. Out of about 2 Lakh students across India, 300 teams consisting of approx. 1500 students were declared as winners of SIH 2019, under their respective problem statements.

Lucky Kaul and Shiv Kumar won Goa edition of Tata Crucible Campus Quiz, 2019

BITS Goa hosted the Goa edition of Tata Crucible Campus Quiz, 2019 on 27th January 2019. A total of 100 teams took part in the preliminary round of the quiz from which the top 6 teams went through to the on-stage final. The quiz was conducted by quizmaster Giri 'Pickbrain' Balasubramaniam in his usual energetic style. The audience experienced a high-paced 45 minute show where the top 6 teams faced tough questions. Lucky Kaul and Shiv Kumar from BITS Goa dominated the final, leaving all the other teams behind and eventually brought back the title to BITS Goa after a gap of three years. Audience prizes were given to those who answered questions that the teams on stage could not answer.

The winning duo walked away with a cheque of Rs. 75,000, which was presented by Prof. Sunil Bhand, Dean, Sponsored Research and Consulting Division, BITS Pilani.



BITS Pilani, Goa Campus Students win design prototype competition



Two students of BITS Pilani, K K Birla Goa Campus, Mr. Suraj Gupta (2017B2A30329G) and Mr. Taaha Nizam (2017A8PS0582G) have secured first place for their design prototype namely 'Smart Sole' presented during 'Open Innovation in Community Based Rehabilitation (CBR) for People with Disabilities (PWD)' and 'Interdisciplinary Design Thinking Hackathon' organized by Cognitive Neuroscience Lab, Department of Biological Sciences, BITS Pilani, K K Birla Goa Campus and Leeds Business School of University of Leeds from 15th to 17th March 2019. The winners were announced in April 2019.

SMART SOLE: The 'Smart Sole' is an ingenious assis-

tive device that aims to help people with neuropathic feet. Such people are sufferers of foot desensitization which leads to their nerves getting embedded and ultimately causing ulcers among other symptoms. 'Smart Sole' aims to demolish the root of the problem by taking a sensory input and transferring it to a band on the wrist or placed in somewhere else. Apart from being simple (Smart Sole itself requires no charging), cost effective and durable, it also serves as a base for other customizations and future products.

Project DiVe won the best project award in the Open Showcase event

Project DiVe won the best project award during the Quark 2019 in the 'Open Showcase' event among all the BITS projects and second best among all the projects that were displayed. The project was led by Atharva M. Dharwa (2017AAPS0266G) and had received financial supports from the Institute funding scheme, EEE department, Sandbox lab and CTE.

BITS Goa students participated in the L&T CreaTech 2019

Three students of Goa Campus - Ashutosh Vashist, Suraj Gupta and Raghav Kapoor participated in the L&T CreaTech 2019, a product prototype design competition, organized by Larsen and Toubro. Their team, "Piezo-Boys" was selected from over 500 teams, participated from more than a hundred of India's leading engineering institutes. "Piezo-Boys" was selected as one of the top 12 teams to represent BITS Goa in the Grand Finale, held in Mumbai on 15th Feb 2019. They developed a solution, "PiezoRun" to recover waste heat energy from road transportation to tackle the everlasting energy problems.

BITS Goa students won Annual Case Study Competition

TBITS-Goa team comprising of Ms. Manika Kanjani (2015B4A10586G) and Mr. Naveen P S (2015A1B30716G) stood first among 230 colleges across India in the National Finals of Case Sensitive, the Annual Case Study Competition. The competition

was organized by BITS Pilani, Hyderabad Campus, which was held on 14th April 2019.

Ms. Anjali Varghese (2018PHXF0405G), PhD scholar from EEE department, has been awarded TCS Research Scholar Program scholarship for the project entitled 'Image Processing and Machine Learning Techniques for Leather Species Identification' under the supervision of Prof. A. Amalin Prince.

Ms. Priya Sharma (2015PHXF0003G), (Department of Biological Sciences) Won BEST POSTER AWARD for One minute on water sanitation poster presentation in National Academia Conclave on Urban Sanitation held at CEPT University, Ahmedabad on 9th and 10th March 2019

Two students, **Mr. Arnav Gupta (2015B1A30810G)**, from the Dept. of Biological Sciences, and **Mr. Akul Gupta (2016B3A70298G)**, from the Dept. of Computer Science & Information Systems and Economics have been awarded the prestigious MITACS Globalink Research Internship, sponsored by the Government of Canada for the summer of 2019. As part of this internship, Arnav will be undertaking research on 'Bioinformatics Technician in Genomics & Metagenomics' under Professor Robert Colautti at Queen's University in Kingston, whereas Akul will be undertaking research on 'Testing of Machine Learning Programs' under Professor Hadi Hemmati at University of Calgary, Alberta, Canada.

Mitacs Globalink Research Internship is a competitive program for international undergraduates from Australia, Brazil, China, France, Germany, Hong Kong SAR, India, Mexico, Tunisia, United Kingdom, and Ukraine, that pairs top-ranked international students with specific research expertise with faculty at Canadian universities for a twelve week research project of mutual interest in the period of May to October. The research internship is held 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.

Mr. Abhiraj Hinge (2016A7PS0053G), a third-year computer science student, was selected as one of the Economic Times Campus Stars - Class of 2018-19. This year, 91 students were selected from a pool of 35,000+ applicants from over 2,000+ engineering colleges in India. The selection was conducted over 4 rounds, the first two of which were psychometric and domain-knowledge tests. Third round involved a group activity to determine leadership skills. The last round was an interview conducted by a panel member from a panel of CXOs. Abhiraj was interviewed by the CEO of Haptik Chatbots, a company that was subsequently acquired for \$100 million by Reliance. ET Campus Stars is an initiative for recognizing and rewarding India's brightest engineering students. Currently into its second edition, this initiative is meant to encourage and nurture young engineers who will be driving the growth of this country as they join the corporate bandwagon.

Mr. Aditya Sinha (2015B3A70352G), a fourth-year student of Computer Science & Information Systems, is selected as a recipient of the **Western Digital Scholarships for STEM** for the amount of \$2000. Up to 400 students from United States, China, Japan, India, Malaysia, Philippines and Thailand are awarded each year with this one-time scholarship. The scholarship is used for tuition fees, books, supplies and equipments required by the students.

Ms. Divya J Mathias (2017H1010022G), a ME Student of the Dept. of Chemical Engineering, has published her thesis work in the international journal of "Biocatalysis and agricultural Biotechnology"- 2019, Volume 20 (<https://doi.org/10.1016/j.bcab.2019.101259>). Ms. Divya has done her thesis under the supervision of Dr. Vivek Rangarajan, Assistant Professor, Dept. of Chemical Engineering. The article is entitled as 'An investigation on citrus peel as the lignocellulosic feedstock for optimal reducing sugar synthesis with an additional scope for the production of hydrolytic enzymes from the aqueous extract waste'.

Mr. Harsh Raj (2017A7PS0942G), a student of Computer Science & Information System, along with Dr.

Swapn Purkait, Director of NETTECH Pvt. Ltd. and Mr. Souryendu Das, Network Software Engineer, Intel Technology India Pvt. Ltd. and a BITS Goa Alumni, has **co-authored a paper** entitled 'Human-Computer Interactions: The Way Forward,' published by The IUP Journal of Information Technology.

Mr. Harsh Vijay (2018B5PS0859G), a first-year student of Physics, secured 21st rank in the **National Graduate Physics Examination** (NGPE), conducted by The Indian Association of Physics Teachers (IAPT) in January 2019.

Mr. Harsh Vijay (2018B5PS0859G), a first-year student of Physics, has been selected for the **National Initiative on Undergraduate Sciences (NIUS) (Physics) Camp 16.1**, organised by Homi Bhabha Centre for Science Education (HBCSE), TIFR (Mumbai) from 10th to 22nd June 2019. With the thrust on promoting undergraduate research and learning, the NIUS programme has been contributing towards training of students and teachers in theoretical and experimental science, preparation of pedagogical material and R&D in science education/laboratory training. Harsh is the sole-representative of BITS-students amongst the 72 students selected from prestigious colleges / universities across India, who has participated in this programme.

Mr. Kaivalya Rawal (2015A7PS0005G) perused his study for a semester in the Politecnico di Milano, Italy, under the agreement of student exchange.

Mr. Mehul Mohan (2017A7PS0935G), a second year student of Computer Science & Information Systems, has been awarded a scholarship to participate in the **Apple Worldwide Developers Conference (WWDC) 2019**, scheduled from 3rd to 7th June at San Jose, California (USA). WWDC is awarded to around 250-300 students globally, among which 9 students from India were selected this time. The scholarship included a ticket to the conference, lodging for the week and one year membership in the Apple Developer Programme.

Mr. Rijul Arora (2014B3A30645G) was selected to participate in the **22nd World Business Dialogue** (<https://www.world-business-dialogue.com/>), one of the largest international student business conferences, held from 18th to 22nd February 2019. This year's theme was **Digital Zeitgeist – Time to Rethink Learning**. Rijul was amongst 220 delegates selected from a diverse pool of about 2000 international applicants from around 60 countries.

He was selected to be a member of **Creation Labs** comprising of 90 delegates who worked to digitize the administrative and registration process for incoming foreign exchange students in Faculty of Management, Economics and Social Sciences of University of Cologne. Rijul offered his analytical and consulting skills to his team which finally won the competition.

Mr. Rijul Arora (2014B3A30645G) delivered a TEDx talk at Kristu Jyoti College of Management and technology (KCMT), Kerala, on 13th July 2019. The topic of his talk was 'A 21 year old millennial's journey from social media addiction to Joy of Missing out.'

Mr. Sharad Chitlangia (2017A8PS0472G) was appointed Visiting Undergraduate Research Intern at Harvard University's Harvard John A. Paulson School of Engineering and Applied Sciences (SEAS) where he worked on Deep Reinforcement Learning for the summer of 2019.

Mr. Sharad Chitlangia (2017A8PS0472G) completed Google Summer of Code 2019 with CERN-HSF for preparation of software to be used in mainstream particle tracking at the Atlas experiment, Large Hadron Collider.

Mr. Siddhant Vitthal Patil (2015A8TS0475G), a fourth-year student of EEE department studying ENI, has been selected for the **International Linkage Degree Program (ILDP) START plus 2019**, International Linkage Degree Program for Developing Innovators Transforming Advanced Technology to Social Goals. The program is scheduled from 24th June to 30th June 2019 at Hiroshima University. Siddhant will be

financially supported by the Sakura Science Plan, Japan Science and Technology Agency (<https://ssp.jst.go.jp/EN/index.html>) and the Hiroshima University. ILDP-START plus Program is an intensive short course, providing an introduction to the exciting and emerging field of cutting-edge technology of Hiroshima University, especially the laboratories relevant to ILDP target fields; smart infrastructure development, new energy, and environmental sustainability.

Mr. Suyash Gaekwad (2015A8PS0218G), fourth year student of Electrical & Electronics Engineering department appeared for the GATE 2019 examination this year and secured an all India rank (AIR) 13 in Instrumentation engineering discipline.

Eight students were awarded **partial travel support grant** by IPCD for conducting First Degree thesis in reputed foreign universities. .

Name	Department	Foreign Institute / University
Aaditya Vikas Vaze (2014B4A70603G)	Computer Science	Department of Computer Science, University of Toronto, Canada
Adwait Bauskar (2014B4A70595G)	Mathematics	Inria, France
B. Rachith Aiyappa (2014B5A40469G)	MSc Physics & Mechanical Engineering	Humboldt-Universität zu Berlin, Berlin, Germany
Glenn Jacob Fernandes (2014B1A30937G)	Biological Science	MIT Media Lab, USA
Samarth Mittal (2015A7PS0023G)	Computer science	NTU, Singapore
Siddhant Jain (2015A7PS0083G)	Computer Science	NTU, Singapore
Shivam Agarwal (2014B3A70938G)	MSc Economics and Computer Science	Insight Centre for data Analytics, Dublin City University, Ireland
Tejas Zodage (2014B5A40609G)	Mechanical Engineering	Carnegie Mellon University, USA

student events

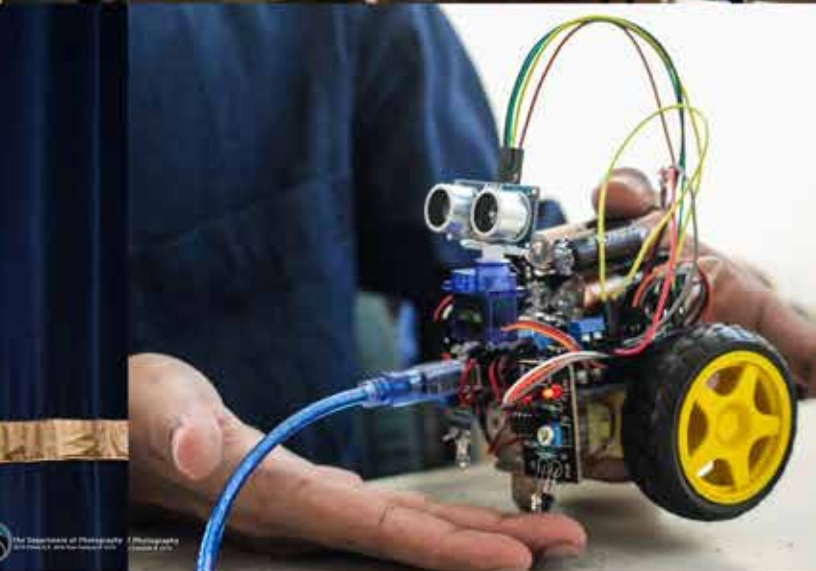
QUARK 2019

Since its inception in 2006, Quark, the techno-managerial fest of Goa Campus has seen a journey of growth, taking the participants through different themes in the process of becoming one of the most anticipated technical fests in the country. Our campus witnessed the 13th edition of Quark, 'Cognitive Overdrive', from 1st to 3rd February, 2019. The three days were packed with events, guest lectures, workshops and Aurora nights. The continuous and over-

whelming support from the CSA and the earnest efforts of most of the departments involved resulted in numerous memorable additions in this edition of Quark that made it remarkable.

Quark holds various events that not only offer the students an opportunity to create something innovative using the technical knowledge they acquired in the classroom in events under the panels-Electrify, Roboficial, Design and Build, and Programmer's Inc. but also provide them a chance to explore the challenges of a corporate world and stock market in events like Bluechip Beatdown, debate about international policies in BITS MUN, and get rewarded for





the expert gaming skills they have been perfecting for the major part of the year in Matka. Various quiz-zing events make Quark a treat for quizzers all over the country.

In the last few years, many eminent personalities have graced Quark as guest lecturers during the three days of the festival. Some of the notable personalities include scientist and former president Late Dr. A.P.J. Abdul Kalam, world-famous cartoonist Stephan Pastis, Nobel laureates like Sir Harold Kroto, CEO of StackOverflow Joel Spolsky and many more dignitaries have provided an insight to their journey in their field of work and have been a constant source of motivation and inspiration for the participants.

The lineup for the Guest lectures and Aurora nights was exceptional and multi-dimensional; consisting of a number of accomplished dignitaries such as Alok-nath De, Avdhesh Singh, Tessy Thomas, and more who delivered inspiring lectures about their field of excellence and many interesting and underrated artists. The participation exceeded pre-fest predictions and as a result, most events as well as workshops, observed a substantial increase in the participation from last edition. The spectacular Robowars' arena erected in front of the B-Dome made it an extravagant event, with the finals pulling a massive crowd. Screening the Matka finals in auditorium was another initiative that received a great response from the audience.

One of the major highlights of Quark is the different workshops that introduce the students to some of the most industry-relevant technical fields of the present day. These workshops are conducted by the big players themselves and give the participants a flavour of the skills required in the competitive world of modern-day technology. Some of the workshops conducted in the last few years include the workshop by Quick Heal on Cyber Forensics and Cyber Security, BuyUcoin on Cryptocurrency, AWS on Cloud Computing, National Instruments on Industrial Internet of Things (IoT), Solid works on CAD Modelling and Design, workshops conducted by SEBI, and many more. The Aurora nights have been a major attraction of the fest and have hosted various artists whose work has emerged out of a beautiful blend of science, technology and performing arts. The previous edi-

tions of Aurora nights witnessed performances by Indian Jam Project, Sonic Snares—The LED Drummers, Miss Alison Gabrielle- the renowned Cellist, Stuart Ashing—Comedy Stage Hypnotist, Ritviz, and Nalayak- The band, Karan Singh Magic, Mahesh Raghavan and many more such interesting artists.

As a well-established name in major parts of the country, Quark takes its duty towards the society sincerely and has worked through various social initiatives like GREEN to create small changes in the society.

BITSMUN 2019

With a perfect balance of diplomacy, comradely and mind-stimulating debate, BITS MUN Goa is poised to become the largest, most exciting Model United Nations conference in Asia. With its first edition being held in 2008, BITS MUN is an exhilarating, three-day event which tests the limits of diplomacy and international relations. Witnessing the participation of more than 300 delegates from all over India, it was held from 1st to 3rd February. Several committees like Security Council, DISEC, Human Rights Council etc. were simulated. The MUN started with an opening ceremony and the committees soon picked up pace with gusto, with the enthusiastic delegates eager to make a change in the simulation, and presumably, even in the real world. After three days of heated debates and discussions, and fiery lobbying, resolutions and other committee documents were passed. The conference witnessed a grand closing ceremony, where the Executive Board members received tokens of appreciation for their work, and several awards like the Special Mentions, High Commendations, and Best Delegates were awarded. The BITS MUN OC wrapped up BITS MUN 2019, only for it to return in a far bigger, better way in 2020!

SPREE 2019

In a world marked by differences in status, background and wealth, the love for sport and the drive for excellence in it are some of the most widely shared values present among us. Invariably, sports and physical activity are some of the most compromised necessities for a healthy and successful life.

However, BITS Goa makes itself an exception to behold, by being the harbour to some of the best sporting facilities that can be provided in the country. Besides providing a cradle for all the on-field gusto, it is also the venue of the biggest sports festival of India – Spree, held annually. This year it was held from 29th to 31st March 2019.

This one-of-a-kind intercollegiate sports and entertainment festival has been maintaining itself as a roaring success, ever since its inception 13 years ago; with each year raising the bar of quality higher. Every year the number of participants is on the rise, thus providing a stiffly competitive nature to each of the sporting events like football, basketball, cricket, volleyball, badminton, tennis, squash, table tennis, carrom, chess, powerlifting and kabaddi. Colleges from across the country in major cities like Mumbai, New Delhi, Pune, Jaipur, Hyderabad, Indore and so on send their most athletic students to compete for the laurels and the heavy monetary incentives of Spree. The fervour for the desire to be named Spree champions for a sport resounds intensely on the competition grounds; leaving all the onlookers mesmerized by the show of athletic proficiency.

Spree 2020 promises glory to both the champions as also to the festival and college itself. The expected participant number is estimated to cross 2500 this year.

Spree, in keeping with its pledge to stand apart from all other sport gatherings, has kept synchronism with the evolving nature of sports by including off beat events like Ultimate Frisbee, Kho Kho, Kabaddi, Tug of War, Pool, Gully Cricket and Futsal.

Besides being a coveted competitive base for athletes all over the country, the festival also has a wide range of social initiatives under its letterhead, like Udaan, the Spree Marathon and the 'Act to Inspire' campaign. Udaan, organized by Spree in collusion with NGO Nirmaan, is for the benefit of the specially abled children. Various sporting events, workshops and talks by celebrities convert the 3 days of Spree as a source of happiness for the less fortunate. The Spree Marathon is conducted in Panjim and is a 10km run in support of the 'don't drink and drive' campaign, in association with Diego and has participants from all

over Goa. The 'Act to Inspire' campaign, initiated in the year 2013, has Spree working with CRY for organizing blood donation camps and Clean-Up drives, in cities where pre-Spree eliminations are conducted. Spree also provides a stage for sportspeople to deliver motivational speeches and share their journey in sport. Sportsmen like cricketer Kapil Dev, Olympic gold medallist Abhinav Bindra and others enthralled all with their words in the previous editions.

In the course of the 3 days of this festival, several interesting workshops related to sports are conducted, providing a crash course in a small aspect of a sport. Football dribbling, skateboarding, etc saw an enrolment of a large number of enthusiastic participants.

TEDx 2019

TEDx BITSGoa conducted the tenth edition of its annual student-run conference on 20 January 2019 in the auditorium of BITS Pilani K. K. Birla Goa Campus. It saw an array of nine diverse path-breaking speakers who shared their stories, inspired the audience and sparked new ideas. To recognize people who have steered away from the conventional path, this edition's theme was 'Flip the Script'. The line-up consisted of Kirti Kulhari, Prateep Basu, Karishma Boolani, Dr Jagdish Chaturvedi, Gayatri Parameswaran, Hormis Tharakan, Franz Gastler, Elena Fernandes and Vilas Nayak.

An award-winning journalist, the first speaker was Gayatri Parameswaran who spoke about the reality of virtual reality and how it was changing the world of journalism. She was followed by Karishma Boolani, a Sports Scientist, who has worked with the Australian Olympics team and has developed the fitness programme FOCUS. Dr Jagdish Chaturvedi left the crowd in stitches through hilarious anecdotes and tales of his life as a practising doctor. In light of all the recent mission's India has conducted to explore space, Prateep Basu, a space scientist and founder SatSure, talked about India's growth in space research. He was followed by Franz Gastler who showed that anything can be achieved with the right amount of dedication and passion. He started a movement in India called Yuwa which battles social problems like illiteracy through the medium of football. The famous Pink





actress and a model, Kirti Kulhari shared her life's philosophy and mantra in a deeply introspective talk urging people to be more self-aware. The stage was also graced by ex-RAW chief Hormis Tharakan. He touched upon topics of national security that have intrigued the public for long. Vilas Nayak gave a stellar performance of his skills as a speed painter. Vilas discusses how he went from a dissatisfied HR Talent Manager to a world-renowned painter by simply not letting fear cloud his vision and encourages everyone to find a unique niche to excel in. The conference was ended by Elena Fernandes who gave an inspiring yet hilarious talk in which she debunked common myths surrounding the lifestyle of a model.

The conference witnessed path-breakers from various walks of life that have overcome obstacles to achieve their outstanding goals. TEDxBITSGoa believes in the spirit of spreading ideas and always aims to fulfil this.

NIRMAAN ACTIVITIES

Nirmaan, Goa Chapter organised various events in this semester:

1. UDAAN

On 23 February 2019 the volunteers of Nirmaan - a student-run NGO - successfully organised Udaan in association with Spree- the sports festival of BITS Pilani Goa Campus. Udaan is a sports festival for the differently abled children across various schools in Goa.



Udaan 2019 witnessed participation of over 150 students from 4 different schools from Goa. It was held

in collaboration with Special Olympics Association Bharat- Goa and Paralympics Association of Goa.

The session began with different categories of judo, where the participants were hearing impaired children. The afternoon session started with fun filled games, activities and dance as a warm up for the children. Sports such as football, softball, bocce and athletics followed. After the completion of sports the volunteers celebrated with the students- playing with them, enjoying themselves, clicking pictures at a photo-booth set up for the children.

The event came to its conclusion with the prize distribution ceremony. The ceremony was graced by Chief guest Prof. Raghurama G, who conferred medals and certificates upon the winners. He praised the participants as well as the volunteers for making this event a phenomenal success.

2. MENSTRUAL HYGIENE AWARENESS



On 6 February 2019, Nirmaan - Goa chapter organized an awareness session on the topic of menstrual hygiene and its understanding. The discussion and the presentation revolved around lifestyle disorders like Polycystic Ovary Syndrome (PCOS) and alternative feminine hygiene products like menstrual cups. It was conducted by Dr. Jansi Satyanarayanan and Mrs Suman Nikhil Sharma from Samriddhi Sharma Foundation, an NGO in Goa.

3. ITI INITIATIVE

It has been observed that many students would drop out of their schools after class 10, and not undergo any further education, or even if they did, some would find the subjects too difficult and not make it through. To counter this, along with ITI Vas-

co, we conducted an awareness session in two nearby schools, Keshav Smruti, Alto Dabolim and Shree Yallalingeshwar Sharda Mandir, Zari on the 8 March. Over 100 students of class 9 and 10 attended the sessions and were acquainted with future vocational training options at ITI.



4. BANKING INITIATIVE



Nirmaan held a banking informative session for the non-teaching staff on our campus that included the gardening staff, the security staff and the mess workers. This session, which was conducted by personnel from SBI, included informing the attendees about the procedure for setting up an account, deposition of money, withdrawal of money, use of ATM cards, slip-less cash deposit facility, printing of passbooks, application of UPI and the use of SBI's YONO application.

5. GMS PROJECT



A number of schools lack the basic amenities which constitute a good schooling environment. One such school was Government Middle School, Dabolim. With the help of Mrs Alka Damle, the leaky tiled roof was replaced with cemented asbestos sheets. The faded external walls, as well as walls of classrooms, the school kitchen and the office premises were plastered and painted to provide for a more welcoming environment. Other than this, the school water tank was repaired, cleaned and a water filter was reinstalled after proper service. Repairing of electrical connections, fitting of new bulbs and tube lights in the school premises were also undertaken.

6. COMPUTER INSTALLATION



In April, Nirmaan installed a full set of 5 computer systems at Sanjay Centre for Special Education, Vasco. The donation was facilitated by BITS Pilani K.K. Birla Goa Campus. With the necessary support from the administration of BITS Pilani KK Birla Goa campus, a Computer Lab for special kids was set up.

7. BLOOD DONATION & EYE CHECK-UP CAMP



In January, a blood donation camp was held in the Student Activity Centre where approximately 170 people donated blood. The blood was collected by Government medical College, Goa. In February, Nirmaan conducted the second eye check-up for the workers and non-teaching staff at BITS, which benefited around 70 people.



8. CLOTH COLLECTION DRIVE



To wrap up another eventful semester, united in the spirit of giving, Nirmaan- Goa Chapter and Abhigyaan conducted a Cloth and Notebook collection drive. The collections of this drive were donated to Goa Welfare Charitable Trust for distribution amongst the needy. BITSians wholeheartedly contributed to this drive by sending a truckload of happiness to the underprivileged.

9. STREET PLAY

With the aim of creating public awareness about issues pertaining to our daily lives, volunteers of Nir-

maan- Goa chapter conducted street plays throughout the state of Goa in February. With a total of 8 versions of the play that ranged from issues like drug abuse and domestic violence to the flaming topic of voter awareness and registration and the menace of unhygienic surroundings, the actors expressed themselves with an appealing vigour. These street plays were performed with the idea to plead to the audience's humanity and to make them realise the change that can be brought, once we set our minds to something worthwhile. spirit of giving, Nirmaan-Goa Chapter and Abhigyaan conducted a Cloth and Notebook collection drive. The collections of this drive were donated to Goa Welfare Charitable Trust for distribution amongst the needy. BITSians wholeheartedly contributed to this drive by sending a truckload of happiness to the underprivileged.



significant projects

No.	Title of the Project	Name of Principal Investigator / Co-investigator and Department	Funding Agency	Proposed/ Sanctioned amount (Rs. In Lakhs)
1	Exploring the effects of polyamine and associated metabolic regulation of hypothalamic GnRH-GnIH synthesis and release during ageing in BALB/cJ mice	Dr. Arnab Banerjee (Biological Sciences) Co-I: Dr. Rajiv Taliyan, BITS Pilani, Pilani Campus	Science and Engineering Research Board (SERB)	38.00
2	Developing Resource Recovery and use (RRR) business options in the sanitation Sector	Prof. M. Srikanth (Biological Sciences)	International Water Management Institute (IWMI)	3.75
3	Bacterial Diversity and Biofilm adhesion inhibition studies	Prof. M. Srikanth (Biological Sciences)	IFB (Phase I)	2.59
4	Vitamin D increase in Mushrooms by exposing by UV light	Prof. M. Srikanth (Biological Sciences)	Tropical Mushrooms & Zuari foods. (Kurade)	3.06
5	Recovery and Purification of enzymes from spent Mushroom Substrate.	Prof. M. Srikanth (Biological Sciences)	Zuari foods & Farms pvt.Ltd/ Tropical Mushrooms Goa	7.15
6	Bioleaching of limestone and clay to remove iron and other transition elements (Titanium, chromium, manganese, nickel and zinc)	Prof. M. Srikanth (Biological Sciences)	Aditya Birla Science and Technology Company Private Limited (ABSTCPL)	10.00
7	Cloning of spot blotch disease resistance gene in wheat.	Prof. Rajesh Mehrotra (Biological Sciences)	International Maize and Wheat Improvement Center (CIM-MYT)	15.00
8	Synthesis of mononuclear as well as homo and hetero dinuclear complexes of Cu(II) and Zn(II) with hard-soft donor ligands and evaluation of their anticancer activities	Dr. Manjuri Kumar (Chemical Engg.) Co-PI: Prof. Sumit Biswas (Biological Sciences)	SERB	26.07
9	Continuous Flow Oil- Water separation system using Smart separators Capable of Low-Voltage Wettability Switching	Dr. Pradeep Kumar Sow (Chemical Engineering)	SERB	46.51
10	Mechanistic approach to design composite metal- carbon nanofiber oxygen electrodes for high-performance metal-air batteries	Dr. Richa Singhal (Chemical Engineering)	DST-SERB ECRA	45.59

No.	Title of the Project	Name of Principal Investigator / Co-investigator and Department	Funding Agency	Proposed/ Sanctioned amount (Rs. In Lakhs)
11	Environmental Audit (EA) for Ammonia, Urea, & Phosphate Fertilizers Units and Storage Sections.	Prof. S. D. Manjare (Chemical Engineering)	M/s. Zuari Agro Chemicals Ltd	8.519
12	Water Audit (WA) for Ammonia, Urea, & Phosphate Fertilizers Units and Storage Sections.	Prof. S. D. Manjare (Chemical Engineering)	M/s. Zuari Agro Chemicals Ltd	8.519
13	Process Design and Development cost effective method for carbon-silica based hybrid fillers for application in rubber products	Prof. S. D. Manjare (Chemical Engineering) Co-PI: Dr. T Sushil Kumar Rajan, Mexichem Industries Mumbai	Apollo Tyres, Chennai	60.00
14	Mesoporous nanocomposites for controlling microbially induced corrosion caused by sulfate reducing bacteria	Prof. Sutapa Roy Ramanan (Chemical Engineering) Co-PI: Prof. Meenal Kowshik (Biological Sciences)	SERB-CORE	32.83
15	Formulation of bio-functionalized cosmetic emulsions using biosurfactant and essential oil as green ingredients	Dr. Vivek R. (Chemical Engineering)	DST-SERB ECRA (Early Career Research Award)	30.27
16	A Computational investigation on the reaction paths and spectroscopic properties of crown ethers	Prof. Anjan Chattopadhyay (Chemistry)	Board of Research in Nuclear Sciences (BRNS)	24.80
17	Photo-irradiation and Adsorption based Novel Innovations for Water-treatment" (PANI).	Prof. Halan Prakash (Chemistry) Consortium partners comprise of 5 European countries, Ireland, UK, Spain, Italy, Cyprus and 5 Indian partners, NEERI, Nagpur; Kwaliti Photonic, Hyderabad; Affordable water solutions, Hyderabad; Society for Alternative Developments, New Delhi; and Society for Technology & Action for Rural Advancement, New Delhi.	Horizon H2020 (EU) - DST	209.31
18	Novel micro and nano sensors for antibiotic resistance measurement.	Prof. Sunil Bhand (Chemistry) Co-PI: Dr. Bin Xie, and Dr. Eng. Nelida Leiva Eriksson, Lund University, Sweden	Sun Pharma Advanced Research Company Ltd (SPARC)	51.00

No.	Title of the Project	Name of Principal Investigator / Co-investigator and Department	Funding Agency	Proposed/ Sanctioned amount (Rs. In Lakhs)
19	Proposal for Appointment as Consultant for Implementation of Artificial Intelligence use-cases in Yard Operations and Onboard Ship Operations.	Dr. Ramprasad Joshi (CS&IS) Co-PI: Prof. Ashwin Srinivasan, CS&IS	GSL	26.00
20	Nokia Localization and Nokia Health	Prof. Vinayak Naik (CS&IS)	Nokia	10.01
21	Use of Cell phones for detecting and controlling infectious diseases	Prof. Vinayak Naik (CS&IS)	The National Geographic Society	6.23
22	MDP on Urban Insurance for PNB Metlife officials	Prof. Debasis Patnaik (Economics)	PNB MetLife	6.78
23	"Impact of "Make in India" and new IPR Policy on Innovation of MNCs and Indian MSMEs in Medical Device Sector"	Dr. Rajorshi Sen Gupta (Economics) Co-PI: Prof. Aswini Kumar Mishra (Economics)	Indian Council of Social Science Research (ICSSR)	6.00
24	Towards a healthy consumption pattern for preventing chronic diseases in India: pattern and determinants in the consumption of substance, healthy and unhealthy diets over 1983-2012	Dr. Sukumar Vellakkal (Economics)	Public Health foundation of India (PHRI)-DST	18.50
25	Offering Provocations, Surfacing evidence " A: The Archiving of Cine-Politics under the Indian National Emergency through Digital Humanities 2.0	Co-PI: Dr. Parichay Patra (Humanities & Social Sciences) PI: Dr. Dibyakusum Ray, IIT Ropar and Dr. Manishita Dass, Royal Holloway University of London	SPARC	4.90
26	Risk & Uncertainty Assessment for Railway Infrastructure due to Impacts of Climate Change	Dr. Rajiv Chaturvedi (Humanities & Social Sciences)	IIM	2.24
27	English Translation of Two Literary works in Malayalam, Haritha Niroopanam Malayalathil (Green- Criticism in Malayalam) and Aa Aa Aanakkathakal (those Elephant stories)	Dr. Rayson K Alex (Humanities & Social Sciences)	Association for the study of Literature and Environment(USA)	0.70
28	A Theoretical and Numerical Study of the Control Problems Involving Differential Equations with Memory Terms.	Dr. Anil Kumar (Mathematics)	SERB MATRICS	6.60

No.	Title of the Project	Name of Principal Investigator / Co-investigator and Department	Funding Agency	Proposed/ Sanctioned amount (Rs. In Lakhs)
29	Magic and Antimagic Labelings of Graphs	Prof. Tarkeshwar Singh (Mathematics) Co-PI: Dr. A. Somoasundaram (BITS Pilani, Dubai Campus)	SERB	19.54
30	Evaluation of Mechanical Performance of the 3-D Printed Peek polymer used in space applications	Prof. D. M. Kulkarni (Mechanical Engg) Co-PI: Dr. Vikas Chaudhari (Mechanical Engg.)	Indian Space Research Organisation (ISRO)	36.29
31	A study on energy barrier to buckling in cylindrical shells	Dr. Sandeep Jose (Mechanical Engg)	SERB- ECRA	32.87
32	Mechanical characterization of noncarbon nanomaterials and their reinforced polymer composite materials and structures	Dr. Sandeep Singh (Mechanical Engg)	SERB- ECRA	19.52
33	Noninvasive investigation of stem cell differentiation using an in house	Dr. Geetha Varier (Physics) Prof. P. Nandakumar (Mentor) Physics	Women Scientists Scheme (WOS-A) of Department of Science and Technology (DST)	32.01

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

Faculty Name	Department of	Name of Advisory Committee /Editorial Board
Dr. Anirban Roy	Chemical Engineering	Journal of Environmental Chemical Engineering
Prof. Anjan Chattopadhyay	Chemistry	Reviewed a paper for the journal named Chemical Papers-This is a journal of Springer publication
Prof. Basabdatta Sen Bhattacharya	CS&IS	Associate Editor, Cognitive Systems Research, Elsevier
Prof. Dibakar Chakrabarty	Biological Sciences	Member, Russian Science Federation and Research Council (TRC) of the Sultanate of Oman. Reviewed one research proposal for Russian Science Federation and one for TRC of Sultanate of Oman. Reviewed 2 papers for Toxicon and 1 paper for Marine Drugs
Prof. Ethirajulu Kannan	Physics	2D Materials IOP Publication, Nanoscale Research Letters ; Springer Publication
Prof. Narendra Nath Ghosh	Chemistry	Member, International Advisory Committee for international conference on Chemical Research in Materials and Biological Sciences (CRMBS-2019), at the Department of Chemistry, Assam University, 15 th - 16 th March 2019
Prof. Narendra Nath Ghosh	Chemistry	Member, Advisory Committee and Resource Person for international conference on Nano-materials for Environmental Applications' (NEA-2019) at Goa Science Centre, 6 th - 7 th March 2019

Faculty Name	Department of	Name of Advisory Committee /Editorial Board
Dr. Pravin Mane	EEE	Reviewed manuscripts 1. IET Circuits, Devices & Systems 2. International Journal of Circuit Theory and Applications 3. IEEE Transactions on Very Large Scale Integration Systems
Prof. Rajesh Mehrotra	Biological Sciences	Reviewed research paper entitled 'Benefits of using genomic insulators flanking transgenes to increase expression and avoid positional effects' for Nature Scientific reports
Mr. Tirtharaj Dash	CS&IS	1. Technical Committee Member, The 2019 International Joint Conference on Neural Networks (IJCNN) 2. Programme Committee Member, 28th International Conference on Artificial Neural Networks (ICANN) 3. Reviewed 2 Full articles for Cognitive Systems Research, Elsevier 4. Reviewed 2 articles for International Conference on Inductive Logic Programming (ILP-2019)
Prof. Vinayak Naik	CS & IS	Member, Technical Advisory Committee for Census 2021 by Ministry of Home Affairs
Dr. Vivek Rangarajan	Chemical Engineering	Reviewed 5 international papers between Jan 2019 to July 2019

introducing new faculty

Name	Department	Designation	Area of Research Interest
Dr Richa Shukla	Economics	Visiting Assistant Professor	Industrial Economics
Dr Tusar Tirtha Saha	Biological Sciences	Assistant Professor, Gr-I	Biotechnology, Disease Vector Biology, Arthropod Genomics, Insect Molecular Biology
Dr Raj Kumar Jaiswal	Computer Science & Information Systems	Visiting Assistant Professor	Computer Networks, Network Security, Internet Security, Forensic (Digital)
Dr Rudranil Basu	Physics	Assistant Professor, Gr-I	Theoretical Physics: Quantum Theory of Gravity, String Theory, Quantum Field Theory
Dr Vankayala Kiran	Chemistry	Assistant Professor, Gr-I	Electrochemical Energy Systems, Solar Fuels, Layered Materials, Molecular Spin / Electronics, Physical Chemistry
Prof Vijay Madhukar Patankar	Mathematics	Associate Professor	Number Theory, Cryptography, Complexity Theory
Dr Prasad Anant Naik	Physics	Visiting Professor	Lasers, Plasma Physics, Optics
Prof Lakshmi Subramanian	Humanities & Social Sciences	Visiting Professor	Social, Cultural & Economic History of Modern India, Gandhi, Methodology & Research in Social Sciences
Dr Soumyabrata Barik	Electrical & Electronics Engineering	Assistant Professor, Gr-II	Electrical Engineering, Power Systems
Dr Varun Sharma	Electrical & Electronics Engineering	Assistant Professor, Gr-II	Electronics

introducing new sr. non teaching staff

Name	Department	Designation
Mr Rajiv Annarao Shinde	Workshop	Workshop Superintendent

School students' visits

As per the guidelines of Ministry of Human Resources Development, about 326 students from the following government high or higher secondary schools from different parts of Goa visited the Campus in January and February 2019. The students were briefed about BITS Pilani and shown few facilities around. The schools which participated are:

1. Govt. High School, Vidyanagar, Aquem, Margao, Goa
2. Govt. High School, Kundai
3. Govt. High School, Mangor hill, Vasco da Gama
4. Govt. High School, Kalay, Sanguem, Goa
5. Govt. Higher Secondary School, Baina, Vasco da Gama
6. Govt. High School, Vaddem-Curdi, Sanguem
7. Govt. High School, New Vaddem, Vasco da Gama
8. Govt. Multipurpose High School Borda Margao

Director Prof. Raghurama G inaugurated two newly built synthetic basketball courts at BITS Pilani, Goa Campus

Dr. Chandu G. Lamani, PE Instructor and In-Charge- Sports Activity Centre & Sports, along with other senior officials including Prof. D M Kulkarni (Dean, Administration), Prof. Ramesha C K (Associate Dean, Students Welfare Division), Mr. A K Patil (Estate Manager) were present during the inaugural function.

Students' basketball team members expressed their happiness for building international standard courts in the campus. Captain of the boys' team, Mr. Pushkar Choupne thanked the Director for supporting them and assured to represent BITS Pilani and bring laurels in basketball to the Institute. After the inaugural function, an exhibition match was played between the student teams.

According to Dr. Lamani, these all-weather synthetic basketball courts are being introduced in Goa for the first time at BITS Pilani, Goa Campus. The courts are fully synthetic and built as per international parameters and standards. The courts, along with exclusive player sitting gallery and a spectator sitting gallery, are built at cost of around Rs. 40 Lakhs. The courts will be most appropriate during the monsoon as even after a heavy rain, it can be cleared in about 15 minutes to provide a slip free court to the players. These courts will give the students a chance to experience world class facilities while playing and BITS Goa can proudly host basketball tournaments of both national and international level in future.

editorial board

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Cover Picture:

Volunteers of **NIRMAAN** (Organisation founded by BITS Pilani students with a passion to fulfill their responsibility towards the less privileged people of the society) performing street play at the Church Square in Panaji, Goa

K K Birla Goa Campus

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