

Semester - I notes 2017-18

# bitscan

K K Birla Goa Campus



**BITS Pilani**  
K K Birla Goa Campus

# from the editor

We present to you the 16th Issue of BITSCAN with happenings and achievements of students and faculty during the first semester 2017-18. This semester witnessed several events which included conferences, expert lectures, annual festivals and international visits, enriching the experience of all BITS family on campus. The semester began with welcoming the newly admitted students and soon was followed by the convocation ceremony for our graduating students. During his convocation address, Prof. Ramachandra Guha, renowned historian, who was the Chief Guest, reminded us about the pluralistic culture of India and urged the audience to be aware of the difference between patriotism and nationalism.

Over the period of the last one year, several faculty and research students presented their research in various international and national forums and won accolades for the institute. Prof. Narendra Nath Ghosh from the Department of Chemistry, was elected as the Fellow of Royal Society of Chemistry, UK, recognizing his efforts in the field of the chemical sciences. Prof. A. V. Kulkarni, Department of Physics, was selected for the Visiting Associateship Programme at the Inter-University Center for Astronomy and Astrophysics, Pune. Dr. Anirban Roy, Department of Chemical Engineering, was awarded the Innovative Project Award 2017 by the Indian National Academy of Engineering, for his work on Low Cost Hemodialysis Membranes.

This year, several international and national conferences were organized on campus. The 55th National Metallurgist's Day and the 71st Annual Technical Meeting was a mega-event wherein over 1100 metallurgists and material engineers from the industry and academia came together to share their experience and knowledge about metallurgy and material engineering. The theme of the international symposium this year was *Light Weighting for Defence, Aerospace and Transportation*. The Centre for Innovation, Incubation and Entrepreneurship

organized a workshop on *problem identification, ideation and conceptualization*, which was well attended by startup enthusiasts. The Department of Biological Sciences organized two workshops: one on *Novel Sanitation Approaches and Emerging Trends in Wastewater Treatment Technology* and the other on *Experimental Methods in Cognitive Neuroscience*. Both the workshops, which covered areas of current importance were attended by participants from India and abroad. The workshop on *Process Modeling and Simulation* organized by the Department of Chemical Engineering provided a common platform for academics and industry to come together. The IEEE's Annual Technical Conference, *Lumini*, provided the students with an opportunity to interact with industry professionals to gain understanding on the working of industries and the skill-set that a budding engineer must attain.

Our students made us proud by winning scholarships, research internships, prizes in conferences, competitive exams and sports. Kishore Gopalakrishnan won the Gold medal in the National Graduate Physics Exam 2017; Ketan Pant won the K.C. Mahindra Scholarship for pursuing his Master's abroad; the short film made by the Film Club titled *A Late Knock*, was nominated to the Jaipur International Film Festival 2018. The student social initiatives, Abhigyan and Nirmaan were also very active this semester and conducted various activities like "no food wastage day," "children's day" (celebrations for children from slum areas around the campus), the Joy of giving week, a beach cleanup drive, blood donation camp and an interactive session with the female housekeeping staff on campus. Waves 2017, the student cultural festival saw participants from all over the country. The editorial team has made attempts to cover all the milestones in this issue of BITSCAN, as this semester has been marked with innumerable academic achievements and hope that we have done justice to all.

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

# Convocation 2017

Convocation 2017 was held in the magnificent auditorium of BITS Pilani, K.K.Birla Goa Campus on 13<sup>th</sup> August, 2017. The Chief Guest for the Convocation was Dr. Ramachandra Guha, a renowned historian, erudite scholar and reputed columnist. In his convocation address, Dr. Guha highlighted the cultural, linguistic and religious diversity as the hall mark of our nation. He also pointed out that the greatness of India has emanated from our civilizational depth and the rich tradition of democracy.

Prof. Souvik Bhattacharyya, Vice-Chancellor, BITS Pilani, Prof. G. Raghurama, Director of BITS Goa campus, members of the Senate, faculty members of Goa campus and other distinguished guests, along with the graduating students and their family members were present on this joyous occasion.

This year, 625 students received their degrees, of which 21 were PhDs. Three students from the Bachelor's degree programs were awarded Medals: Gold medal —Mr. Talluri Varsheeth, Silver medal – Mr. Ayush Sharma and Bronze medal –Mr. Sudeep Mishra. Prof. Govindan Rangarajan (Prof. Dept.of Mathematics, IISC Bangalore), Prof. Narayana R. Alluru (Kritzer Prof. Dept. of Mechanical Science and Engineering, University of Illinois at Urbana-Champaign), Mr. Hari Menon (CEO, BigBasket.Com), Mr. Harish Bhat (Chairman, Tata Coffee Ltd.) received the Distinguished Alumnus Awards of 2017. Mr. Hari Menon was present at the convocation to receive the award.

In his address, Dr. Kumar Mangalam Birla, Chancellor of BITS Pilani, urged the graduating students to be innovative and disruptive for being creative. He pointed out that disruption displaces an existing market, industry or technology and creates something new, more efficient and worthwhile. He also advised the students on the characters of quality that they should look out for which include learning to shoulder responsibilities early on, gauge success by the distance you have travelled from where you began, rather than how far you wish you had gone, learn to be a good listener, and never burn your candle at both ends.

Prof. Sauvik Bhattacharyya, the Vice-chancellor of BITS Pilani, presented an overview of the university's accomplishments, and in particular, highlighted its pioneering role in fostering innovation and entrepreneurship in higher education. He wished the graduating students professional success and a good life, and at the same time reminded them to remain hungry, remain passionate and to do something meaningful for the fellow citizens and for the society at large. The Director, Prof. G. Raghurama gave a detailed report of BITS Pilani Goa Campus, offering a comprehensive overview of the advances in research, new initiatives and collaborations of the Institute. His advice to the students was to dream big, work hard to achieve your dream, stay open to trying something new, and create things that will make us all proud.









# a confluence of ideas academia

seminars/ conferences/ workshops/  
training programs

## **The 55th National Metallurgist's Day and the 71st Annual Technical Meeting:**

The 55th National Metallurgist's Day and the 71st Annual Technical Meeting was held at BITS Pilani, K. K. Birla Goa Campus, from 11th to 14th November, 2017. The NMD-ATM 2017 was hosted by the Indian Institute of Metals, Goa chapter, organized jointly with IIM, Mumbai, and IIM Pune chapters. The objective of the annual mega-event was to bring metallurgists and material engineers from the industry and academia on one platform to share their experiences and knowledge about metallurgy and material engineering, from all over India and abroad. The theme of the international symposium this year was "Light Weighting for Defense, Aerospace and Transportation".

The international symposium of the NMD-ATM, 2017 was convened by Prof. Amol Gokhale (IIT Bombay), the Chairman of the International Symposium. Prof. Souvik Bhattacharyya, Vice-Chancellor, BITS Pilani welcomed the dignitaries and participants. Dr. Biswajit Basu, President, Indian Institute of Metals then gave the welcome address for the symposium. Dr. D. Bhattacharya, Vice Chairman, Hindalco Industries, chaired the panel discussion. The panellists were Dr. S. Christopher, Chairman, DRDO India, Mr. Arvind Bhardwaj and H. M. Nerurkar.

The chief guest for the symposium, Shri Manohar Parrikar, Honourable Chief Minister of Goa delivered the inaugural address. Shri Parrikar shared his own experience in the field of metallurgy, being a metallurgical engineer from IIT Bombay himself. He highlighted the importance of Carbon materials and nanotechnology alongside the steel. He emphasised light weighting can save crores of rupees in terms of energy and transportation.

During this four day event, the campus witnessed the presence of many prominent people from industry and academia. Shri Arun Kumar, Secretary, Ministry of Mining inaugurated the Iron Ore Symposium on 12th November. The National Metallurgist's Day was celebrated on 14th November and the function was graced by the presence of Honourable Union Minister of Steel, Shri Chaudhary Birendra Singh, along with the guests of honour, Dr. Aruna Sharma, Secretary, Ministry of Steel, and Ms. Ruchika Chaudhry Govil, Joint Secretary, Ministry of Steel. Mr. Anand Sen, Vice President, Indian Institute of Metals welcomed the dignitaries and participants. Dr. Biswajit Basu, President, Indian Institute of Metals then gave the presidential address. In her address, Dr. Aruna Sharma emphasized on the importance of metallurgy and material sciences in technical education. She urged students to take more interest in metallurgy.

The chief guest of the award ceremony, Shri Chaudhary Birender Singh, during his address appreciated the contributions of emerging metallurgists from academia and industry to the Make in India policy. He expressed his wishes to see the outcomes of such conferences and innovations translate into policy making. The National Metallurgist's Day Awards and IIM Sustainability Awards were announced by Mr. S. K. Roy, Secretary General, Indian Institute of Metals.

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## **Workshop on Problem Identification, Ideation and Conceptualization:**

A one-day workshop on "Problem Identification, Ideation and Conceptualization" was held at BITS, Pilani, K K Birla Goa Campus on 30th November, 2017. The workshop was organized under the leadership of Prof. Mridula Goel, Faculty-in-charge, Centre for Innovation, Incubation and Entrepreneurship, BITS Pilani, K K Birla Goa Campus & BITS BIRAC BioNEST. The BioNEST is being set up by the Institute to support innovations in healthcare & environmental engineering. It will be equipped with state-of-the-art equipment related to Microbiology and Molecular Biology.

The workshop was inaugurated by Mr. J. M. Noronha,





Chairman Goa State Innovation Council. Speaking on the occasion, Prof. G. Raghurama, Director of BITS Pilani, K K Birla Goa Campus, said that it is important to focus on the problem to develop an effective solution and create a successful startup. Mr. Vibhav Joshi, Founder of Sattva Medtech, Bangalore, shared his vision of reducing prenatal deaths in the country through the development of a fetal monitor. Dr. Anirban Roy and Dr. Ravi Aduri, faculty members at BITS, shared their experiences in creating innovations that can be commercialized.

The Workshop was well attended by students, faculty, E-CELL members and startup enthusiasts from Mumbai and Goa.

Participants identified several health problems related to radiation from mobiles, fast-food habits, environmental destruction, loneliness and stress. They proposed solutions to address these challenges. The first prize was given to a team from MES College of Arts and Commerce, Zuarinagar, for the idea of a smart watch for blind people to increase their safety.



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### **A workshop on Novel Sanitation approaches and Emerging Trends in Wastewater Treatment Technology:**

A workshop titled as “Novel Sanitation Approaches and Emerging Trends in Wastewater Treatment Technology” was held at BITS Pilani, Goa Campus in association with IHE Delft, Netherlands and Bill and Melinda Gates Foundation during 19 to 21 December, 2017.



The highlight of the proceedings was a master-class in Environmental Electrochemistry by Prof. Olivier Lefebvre, Dr. Hugo Olvera-Vargas and Dr. Orlando Garcia Rodriguez from the National University of Singapore, accompanied by a technical demonstration of environmental electrochemistry in action. A field visit to different treatment systems on the BITS University campus along with a visit to an off campus, single household dry toilet was the most sought after event of this workshop. Dr. M. M. Ghangrekar, Dr. Malini Balakrishnan, Dr. Dror Avisar from Tel Aviv University, Dr. Hoysall Chanakya from the Indian Institute of Science, Dr. Venkata Mohan, CSIR-IICT, were among the eminent speakers. Ongoing research in Dr. Srikanth Mutnuri's lab, the convener of the workshop, was well represented by the current and the past members of his research group.





## Experimental Methods in Cognitive Neuroscience:

A two-day National workshop on “Experimental Methods in Cognitive Neuroscience” was organized by the Cognitive Neuroscience Lab, Department of Biological Sciences, BITS Pilani, K K Birla Goa Campus, from 15 to 16 December, 2017. Dr. Veeky Baths, Dept. of Biological Sciences, was the organizing secretary, co-organized by Dr. Ramesh K Mishra, Center for Neural and Cognitive Sciences, University of Hyderabad. Cognitive Neuroscience is an interdisciplinary approach to understand the neural substrates of mental processes. It is a broad area where insights from psychology, neurobiology, bioengineering, physics, computer science, linguistics, mathematics and philosophy find relevance. The diversity in this field of research and discussion of latest experimental methods were some of the foci of this workshop. The Chief Guest for the inaugural ceremony was Prof. Narayanan Srinivasan, Centre for Behavioral and Cognitive Sciences (CBCS), University of Allahabad. Dr. Samit Chakrabarty, School of Bio-Medical Sciences, University of Leeds, Ashima Nehra, Department of Neuropsychology, AIIMS, New Delhi, Prof. Narayanan Srinivasan, CBCS, University of Allahabad, Dr. Raghavendra Singh, India Research Laboratory IBM, Dr. Sachin Deshmukh, Centre for Neuroscience, IISc Bangalore, Dr. Pratik Mutha, Department of Biological Engineering, IIT Gandhinagar, Dr. Aditya Murthy, Centre for Neuroscience, IISc Bangalore and Dr. Ramesh Kumar Mishra, CNCS University of Hyderabad, were among the eminent speakers. A total of thirty participants attended the workshop from various National colleges and universities.



## Workshop on Process Modeling and Simulation:

The department of Chemical Engineering conducted a two-day workshop on “Process Modeling and Simulation for Industries & Academicians” on 21st and 22nd of December, 2017. The workshop was aimed at providing the working professionals in industries and academics, with a platform to enhance their process knowledge on modeling and simulation of the process under study. Prof. Ranjan Kumar Malik, Professor Emeritus, IIT Mumbai and Dr. Pramod Pathak, former member secretary, Goa Energy Development Agency (GEDA) graced the occasion as the chief guest and the guest of honour, respectively. Prof. S. D. Manjare, coordinated the programme. Twenty-five participants from various industries and universities participated in the workshop. On this occasion, officials from Deccan Chemicals, Zuari Industries, Syngenta Biosciences Pvt. Ltd. and experts from TERI, New Delhi, were present.



## IEEE's Annual Technical Conference, Lumini:

The student branch of IEEE, BITS-Goa, organized the second glorious edition of the Annual Tech Conference, Lumini. A diverse range of speakers delivered well-chosen and relevant discussions on topics ranging from “internet of things in automobiles to R&D in technology.” The objective of the interactive discussions was to help the students of

BITS Goa to develop the skills needed for a budding engineer.

Ms. Srilakshmi Subramanian, a senior technical leader at Ericsson, Ms. Sumedha Limaye, an Engineering Director at Intel, Mr. Rakesh Hariharan, a systems architect at Texas Instruments, Mr. Subodh Gajare, Mr. Prajyot Mainkar, Google Developers and Mr. Anand Gharpure, Jt. Treasurer and Chair, YP professionals of IEEE Bombay Section were some of the multifaceted and extremely successful professionals who delivered talks during the event.

## Insurance for PNB :

The workshop on 105 PNB MetLife Executives organized by the Department of Economics was one of the series of workshops that the Department has been conducting since 2015 with Dr. Patnaik as the Resource Person and Co-ordinator. The objectives have been manifold ranging from the developmental issues on new insurance products, with a focus on rural products and customer management, in this age of competition and globalization.

# distinguished lectures

| S. No. | Date            | Title of the Talk   | Speaker's Name              | Speaker's Designation   |
|--------|-----------------|---|-----------------------------|---|
| 1      | 24th Aug, 2017  | Dealing with Quotients  | Dr. Shameek Paul            | Visiting Fellow, Homi Bhabha Center for Science Education, Mumbai                                   |
| 2      | 29th Aug, 2017  | Semipositivity of matrices and their preservers   | Dr. Sachindranath Jayaraman | Assistant Professor, School of Mathematics, IISER Trivandrum  |
| 3      | 19th Sept, 2017 | Perspectives of Predictive Modeling for Real World Problems   | Prof. V. Sree Hari Rao      | Director, International Center for Interdisciplinary Research & Innovation, Hyderabad               |
| 4      | 28th Sept, 2017 | Equivariant cell complexes and freeness theorems  | Dr. Samik Basu              | Assistant Professor, Department of Mathematics, Ramkrishna mission, Vivekanand University, Calcutta |
| 5      | 14th Oct, 2017  | Neutron Activation Analysis: A potential nuclear analytical technique for trace element determination and speciation studies in environmental and food samples. | Dr. Raghunath Acharya       | Associate Professor in Chemistry, Radiochemistry Division, BARC, Mumbai.                            |



| S. No. | Date                 | Title of the Talk  | Speaker's Name             | Speaker's Designation  |
|--------|----------------------|--|----------------------------|--|
| 6      | 2nd Nov, 2017        | Feeling beyond the Person: Affect in Cinema                              | Moinak Biswas              | Professor, Dept. of Film Studies and the coordinator of the Media Lab, Jadavpur University |
| 7      | 14th Nov, 2017       | Technical analysis   | Prof. Babu Aiholi          | Department of Economics, Goa University  |
| 8      | 17th -19th Nov, 2017 | Finite Difference Schemes for Approximating Hyperbolic Conservation Laws | Prof. G. D. Veerappa Gowda | TIFR-Centre for Applicable Mathematics, Bangalore  |
| 9      | 25th Nov, 2017       | Estimating transport Coefficients of Dark Matter                         | Prof. Hiranmaya Mishra     | PRL Ahmedabad  |
| 10     | 27th Nov, 2017       | Demonetization, GST and Black Economy: Marginalizing the Marginal        | Prof. Arun Kumar           | Malcolm S. Adiseshiah Chair Professor Institute of Social Sciences, New Delhi              |
| 11     | 30th Nov, 2017       | Approximate Solution of Integral Equations: Improvement by Iteration     | Prof. Rekha P. Kulkarni    | Department of Mathematics, Indian Institute of Technology, Bombay                          |

## alumni affairs

### **BITSians Day:**

The fourth edition of 'BITSians Day' was celebrated on 4th of August, 2017. A BITS-RUN (Marathon) was organized on the same day to celebrate the spirit of "Once a BITSian, Always a BITSian."



## Embryo & On-campus Lectures:

Alumni Affairs, BITS Pilani, K K Birla Goa Campus, has organized the following Embryo & On-campus talks from January to December, 2017. Details are as follows:

| S. No. | Date            | Title of the Talk   | Speaker's Name  |
|--------|-----------------|---|---|
| 1      | 12th Aug, 2017  | A talk by Distinguished Alumnus Award 2017 winner                                 | Mr. Hari Menon,<br>Co-founder & CEO, Bigbasket  |
| 2      | 26th Aug, 2017  | Metanoia – 3rd Annual BITS Alumni Summit  | Shreyas Habbu<br>Bandan Jot Singh<br>Padmini Chettur<br>Shashi Warriar<br>Nishith Rastogi<br>B Sandhya  |
| 3      | 27th Sept, 2017 | BITS2MSPHD  | Ketan Pant,<br>Masters Student, Stanford University<br><br>Gauri Jagtap,<br>PhD student, Iowa State University<br><br>Paritosh Raman,<br>PhD student, Georgia Institute of Technology |
| 4      | 4th Oct, 2017   | Life at BITS  | Sajal Chakravarty,<br>Product Marketing Manager,<br>UpGrad  |
| 5      | 10th Oct, 2017  | Progenitor Cells in the developing kidney – Balancing Renewal and Differentiation | Harini Ramalingam,<br>PhD student, UT Southwestern Medical Center   |
| 6      | 15th Nov, 2017  | BITS2Civil Services   | Hari Krishna Reddy<br>Sanskriti Jain<br>Ankur Aggarwal  |
| 7      | 18th Nov, 2017  | Future in core domain of EEE/E&I  | Siddharth Malhotra<br>Design Engineer, Texas Instruments  |



## Metanoia:

Keeping in mind its resolute mission to keep the alumni of BITS connected to their Alma mater and to maintain the integrity and strength of the vast alumni community, BITS Alumni Affairs Division under the leadership of the Student Team, Goa, conducted the second edition of Alumni Summit on 26th of August, 2017. Six speakers who were invited were Mr. Shreyas Habbu, Chief Minister's Fellow, Government of Maharashtra, Mr. Bandan Jot Singh, Expeditioner (the First Indian Sikh to raise the Indian Flag on Antarctica); Ms. Padmini Chettur, Dancer & Founder (Padmini Chettur Dance Company), Mr. Shashi Warriar, Author, Mr. Nishith Rastogi, Founder, Locus.sh and Ms. B Sandhya, Additional Director General of Kerala Police in India. The speakers reminisced about their life back at the BITS campuses and their journey thereafter.



## Prof. Suresh Ramasamy Memorial Award 2017-18:

The project idea 'Imitato Robotics' created by the campus students named Vadaga Ananyo Rao, Shardul Walwadkar and Chakshu Moar was selected for Prof. Suresh Ramaswamy Memorial Award 2017-18. This project was selected from among the 11 projects that competed. Imitato is a project that aims to reduce and eliminate the risk for humans of working in high risk operations or highly hazardous environments with the help of innovative robotics technology. Robots today are autonomous or instruction controlled, due to which they need to be trained for specific tasks.

Imitato Robotics aims to solve these problems by designing humanoids which mimic the actions of a human being and hence can perform tasks in new environment based on human intelligence. A grant of Rs. 40,000/- was awarded to the winning team.

## Research Scholarship:

One of our alumni, Mr. Satish Sankaralingam, initiated a research scholarship for BE students which was awarded to Hardik Hingorani, Shashwat Verma and Sukirt Thakur in recognition to their research work.

The details of their papers are:

- **Hardik Rajesh Hingorani (2012B2A1636G)**

Paper Title: Photopolymerization of Diacetylene on aligned multiwall carbon nanotube microfibres for high performance energy devices.

- **Shashwat Verma (2012B2A4638G)**

Paper Title: Viscometric investigation of binary, ternary, quaternary liquid mixtures: Comparative evaluation of correlative and predictive models & Two new models for viscosity prediction of binary, ternary and higher order liquid mixtures.

- **Sukirt Thakur (2013A4PS243G)**

Paper Title: Evaluation of turbulence and radiation models in modeling of non-premixed flame

# visits by faculty

enriching the learning  
experience

## international visits

**Prof. Mridula Goel** Associate Professor, Department of Economics along with her Ph.D. student **Ujjwala Bhand** participated in the 19th International Conference on Entrepreneurship, Innovation and Regional Development “ICEIRD 2017” and presented their research paper entitled “ Understanding Innovation by Analyzing the Pillars of Global Competitiveness Index ” held at Barcelona, SPAIN during August 17-18 2017.



**Dr. Sandhya Mehrotra**, Department of Biological Sciences, delivered a talk on “Targeting chloroplast bicarbonate transporter BicA and SbtA to chloroplasts of *Nicotiana* for enhanced CO<sub>2</sub> fixation” in the Global Conference on *Plant Science and Molecular Biology* (GPMB 2017) held from 11th to 13th September, 2017, at Valencia, Spain.



**Prof. Anjan Chattopadhyay** delivered a talk, entitled, “A Computational Investigation of the Photochemical Oxaziridine Conversion Process of Some Experimentally Analyzed Small-Chain Conjugated Nitrones” at the 4th International Conference on *Physical and Theoretical Chemistry* during 18th and 19th of September, 2017 in Dublin, Ireland.



**Prof. Sunil Bhand** chaired a session and also made an oral presentation of his research paper titled “Molecularly imprinted polymer decorated nanoparticles for selective determination of Tetracycline in milk” at the 12th Workshop on Biosensors and Bio analytical Micro techniques in Environmental and Clinical Analysis, at the International Biosensor Conference organized by Italian National Research Council at Rome, Italy, held during 25-29 September, 2017.

**Dr. S. S. Baral**, **Akash Gandhi**, **Ankit K Othari**, **Gourav Gupta** and **Parag Jain** presented a paper titled, “Potential of Biofuel Production from Microalgae through Municipal Wastewater Treatment” at the 12th Conference on *Sustainable Development of Energy, Water and Environment Systems* (SDEWES-2017), held from 4th to 8th October, 2017 at Dubrovnik, Croatia. In the same conference, **Dr. S. S. Baral** and **Mr. Surendran Ganesan** presented another paper titled as “Selection of Suitable Adsorbent for the Removal of Cr(VI) by using Objective Based Multiple Attribute Decision Making (MADM) Method”.



**Prof. S. D. Manjare** chaired the SDEWES2017 conference session, “Sustainability comparisons and measurements 2” that was held on October 7th, 2017 at the International Conference on *Sustainable Development of Energy, Water and Environment System*, held at Dubrovnik, Croatia from 4th to 8th October, 2017.

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**Dr. Kiran D. Mali** delivered a talk on “Effect of Fit of the Clamping Bolts in the Plate-Fixture Assembly on the Natural Frequency of Clamped Rectangular Plate” at ASME’s International Mechanical Engineering Congress and Exposition (IMECE2017) from 3rd to 9th of November, 2017 at Tampa, Florida, USA.



**Dr. Vikas Chaudhari** chaired a session at the International Mechanical Engineering Congress & Exposition (IMECE- 2017), ASME 2017 conference held from 3rd to 9th November, 2017, at the Tampa Convention Center, Florida, USA. Dr. Chaudhari also presented a paper titled “Investigation of Cohesive Zone Model Parameters for Steel Used in Shipbuilding Structure” during this conference.



**Dr. Gauranga Charan Samanta** presented a paper entitled "The qualitative behavior of the cosmological models in Friedman Robertson Walker space time" in the Ninth Australasian Conference on *General Relativity and Gravitation* at the Gravity Discovery Center, at the University of Western Australia, Perth, held during 27th to 30th November, 2017.

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**Dr. Amitendu Bhattacharya** from the Department of Humanities and Social Sciences presented a paper titled, “Accounting for Taste: Culinary and Alimentary Reconfigurations in Colonial Bengal” at the International Conference of *Writing/Righting Wrongs/ Agravious del pasado, re-creaciones del presente*, organized by the Spanish Association for Interdisciplinary India Studies and the Department de Filologia Anglesa i de Germanistica, Universitat Autònoma de Barcelona, Spain, from 29th November to 1st December, 2017.



**Dr. J. Nambi Krishnan, S. Grover, A. Deshpande and T. Ravindran** presented a paper titled, “Design and Development of a Microfluidic Platform for Water Analysis” at the 2017 TechConnect World Innovation Conference and Expo (NanoTech-2017) held at the Washington DC, USA.

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**Dr. J. Nambi Krishnan, K. Dhingra, S. Gupta, M. Sarupriya and S. Kumar** presented the paper titled “Study on the Role of Additives in Non-cyanide Baths for the Fabrication of Anisotropic Metallic Nanostructures” at the 232nd Electrochemical Society Meeting, 2017 held at the Washington DC, USA.

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## invited talks by faculty

**Dr. Anirban Roy** delivered a talk titled “How can we tune the biological response of a membrane surface: An Investigative Study” in the Biological Engineering Society Conference (BESCON) 2017 held at Delhi from 8th to 9th September, 2017.

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**Prof. S.D. Manjare** delivered a talk on “Environmental Management Tools for Sustainable Development” at the Department of Chemical Engineering, KLE DR.M S Sheshgiri College of Engineering and Technology, Belgaum on the 15th of November, 2017.

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**Dr. Subhadeep Banerjee** delivered a lecture on Synthesis and spectral studies of push-pull dibenzodioxins and phenazines – efforts towards heteroacenes with long wavelength properties, at the International Conference on *Nano and Functional Materials: Interface between Science and Engineering* hosted by Department of Chemistry, BITS Pilani, Rajasthan, from 16th to 18th November, 2017.

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**Prof. Mainak Banerjee** delivered an invited talk on “Water Soluble Tetraphenylethenes: an Aggregation Induced Emission (AIE) active auto-fluorescent probe for detection and imaging” at the

International Conference on Nano and functional materials: Interface between Science & Engineering at Department of Chemistry, BITS Pilani, Rajasthan, from 16th to 18th Nov., 2017.

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**Prof. Rajesh Mehrotra** delivered extension lectures in Chaudhary Bansi Lal University, Bhiwani, on “Plant development” on November 11th, 2017.

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**Dr. Chandradew Sharma** attended the International workshop on the economy as a complex system IV: Can Economics be a Physical Sciences? Participants discussed the complexity of the financial market and how to solve the complexity of the financial market using modern physics techniques. The workshop was organised at IMSC Chennai from November 13-14, 2017.

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**Dr. Debasis Patnaik** presented two talks at Kadapa University, Andhra Pradesh, on 22nd December, 2017. One was on the trends in Social Science Research and Interface Areas and the other was on industrialization processes in India. He was invited as the resource person and delivered a series of lectures for Japanese students in Goa University on ‘Industrialization in India’ on 6th, 9th and 11th December, 2017.

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**Dr. Anil Kumar** delivered an invited talk in the International Conference on “Nonlinear Differential Equations-Theory, Modelling and Computations” held at SRM University, Kattankulathur, Chennai, on 8th and 9th of December, 2017. The title of the talk was “A Computational Study of Orthogonal Spline Collocation Methods for fourth-order Boundary Value Problems”. He also co-chaired one of the paper presentation sessions.





**Dr. S. S. Baral** delivered a talk on the topic “Adsorption: Fundamental, kinetics, isotherm, mechanism and application to wastewater treatment” on 09 December 2017, at Goa University.

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**Prof Sunil Bhand** delivered an invited talk on “Nanomaterials integrated biosensing platform: Application in ultrasensitive chemical and biological analysis” in session themed, *Biocompatible systems for medical applications, theranostics and devices for drug delivery* at the 6th International Symposium on Integrated Functionalities ISIF 2017, organized under the aegis of Material Research Society of India (MRSI), from 10th to 13th December, 2017, New Delhi. Prof. Bhand was also the member of the core organizing committee of ISIF 2017.

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**Dr. K. A. Geetha** presented a paper titled “Fiction and Reality: The Politics of Panchami Lands” at the International conference on Emerging Trends in Multidisciplinary Research held at Singapore from 27th to 30th December, 2017. The conference was jointly organized by Singapore Tamil Language Center and American College, Madurai.

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**Prof. Srinivas Krishnaswamy** delivered a lecture on “Unmixed Combustion for heat transfer applications” in the Department Seminar of Department of Chemical Engineering, IIT Bombay, on the 9th of March, 2017.

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**Dr. V. Dhanya Ram** delivered an invited talk entitled “Multivariable control of unstable systems based on SSGM” in the National Workshop on *Trends in Process Control* at IIT Madras on 21st April, 2017.

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## achievements

**Dr. Narendra Nath Ghosh** has been elected as the Fellow of the Royal Society of Chemistry, UK. This is a prestigious fellowship awarded through election in recognition of his academic contribution to the field of Chemistry. Dr. Ghosh has been selected for his about 20 years of research efforts in basic and

applied science which resulted in the development of novel synthetic methodologies for preparation of varieties of nanostructured materials for various applications, such as advanced catalysts, sensors, microwave absorber, advanced magnetic materials, water pollution and energy storage devices.

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**Prof. Arun V. Kulkarni** has been selected to the IUCAA Associateship Program for the duration 1st August, 2017 to 31st July, 2020. He shall be working in the areas of Gravitational Wave detection and LIGO, and Numerical Relativity.

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**Dr. Debasis Patnaik** was felicitated for his novel contributions in the interdisciplinary pedagogical approaches to Economics by the Department of Economics, Kadapa University, on 23rd December 2017. The honor bestowed was due to his contributions to interdisciplinary and pedagogical approaches to academia.



**Dr. Anirban Roy** was awarded the Innovative Project Award 2017 by the Indian National Academy of Engineering, for his work on Low Cost Hemodialysis Membranes. He has also been nominated as a member of the academy for the next 5 years.



# significant projects

| PRINCIPAL INVESTIGATOR & NAME OF THE DEPARTMENT                              | TITLE OF THE PROJECT   | FUNDING AGENCY        | AMOUNT (RS. LAKH)     |
|--|--|-----------------------|-----------------------|
| Dr. Gauri Anil Achari<br>Mentor<br>Dr. Meenal Kowshik<br>Biological Sciences | Novel Sustained Release Biodegradable Polymer Coated Urea And Zinc Nanofertilizers For Synchronizing Fertilizer Uptake, Improving Productivity And Prevention Of Bacterial Wilt Disease In Chilli (Capsicum Annum L) | SERB                  | 19.20                 |
| Dr.M. Srikanth<br>Biological Sciences  | Demonstration Of A Waste To Energy Project By Anaerobic Co Digestion Of Food Waste And Septage   | DBT                   | 161.6                 |
| Dr. Teny Theresa John<br>Physics   | Ecofriendly Flexible Czts Solar Cells  | SERB                  | 29.25                 |
| Dr. K. R. Anupama<br>EEE   | A Comprehensive Iot Based Geriatric Health Care System For Routine Health Monitoring And Postoperative Care  | DST-ICPS              | 50                    |
| Dr. R. P. Pradhan<br>Humanities & Social Sciences                            | India & Neighbourhood Sea Ports Comparative Vessel, Traffic & Pattern Analysis Using Real Time Ship Tracking Traffic Intelligence Tool For Commodity Movement & Gdp Correlation Mapping                              | DST-ICPS              | 40                    |
| Dr. Mainak Banerjee<br>Chemistry   | A Polydiacetylene-Based Fluorescent Sensor For The Detection Of Arsenic Species And Uranyl Ion In Water By Conventional And Nuclear Analytical Methods   | BRNS                  | 27.92                 |
| Dr. S. D. Manjare<br>Chemical Eng.   | Process Improvements In Urrakh And Feni Production In Goa” (Pilot Scale Process And Thermal Efficiency Improvement Measures  | DSTE, GOA             | 7.5 & 2.50 (INDUSTRY) |
| Dr. Shilpa Gondhali<br>Mathematics   | A Study Of Homotopy Invariants Of A Model Category   | SERB (MATRICS) SCHEME | 6.00                  |



| PRINCIPAL INVESTIGATOR & NAME OF THE DEPARTMENT | TITLE OF THE PROJECT   | FUNDING AGENCY | AMOUNT (RS. LAKH) |
|---|--|----------------|-------------------|
| Dr. Sharad Sontakke<br>Chemical Eng.            | Catalytic Hi Decomposition Studies In Membrane Reactor For Hydrogen Production   | BRNS           | 19.33             |
| Dr. Saroj Sundar Baral<br>Chemical Eng.         | Development Of Suitable Material For Visible Light Induced Photocatalytic Hydrogen Production From Industrial Wastewater | SERB           | 35.83             |
| Dr. Sharad Sontakke<br>Chemical Eng.            | Development Of Anodic Material For Dssc  | DST INSPIRE    | 7.00              |

# student achievements

## Hyperloop India

Founded in 2015 by a small group of students from BITS Pilani, Team **Hyperloop India** is a unique **multi-disciplinary cross-campus** think-tank consisting of motivated student volunteers in the fields of engineering, business and design, interested in reinventing transportation in India.

The team has participated in the **Hyperloop One Global Challenge**, for which they proposed a feasible business model and implementation strategy for bringing the Hyperloop to India. The proposal is one among the 10 international candidates **chosen by Hyperloop One as winners** of the competition.

The team was also amongst the 24 finalists in the **2017 SpaceX Hyperloop Pod Competition** for which they built an autonomous and fully functional Hyperloop pod capable of running at the mile long test track at **SpaceX, California**. The project is a massive interdisciplinary collaborative effort that involves work on every aspect of the pod, including structural simulations, fluid dynamics simulation,

embedded electronics, real time systems, power systems and vehicle dynamics.

The team presented the pod and the Hyperloop concept to the Hon'ble Prime Minister Narendra Modi and Advisor to the President of the United States, Ivanka Trump at the **Global Entrepreneurship Summit 2017, Hyderabad**.

## Project Apeiro

Project Apeiro is led by a team of undergraduate students from BITS Pilani, Goa Campus, and is India's first student-led space experiment. It aims to determine and analyse space radiation in the lower stratospheric regions over the central part of the Indian subcontinent. The results will be compared and further analysed with the NAIRAS model developed by NASA and is very similar to the Rad-X experiment. The team includes **Sanket Deshpande (2014B5A30599G)**, **Lucky Kapoor (2014B5A30449G)**, **Shivangi Kamat (2013B5A30726G)**, **Pankaj Tiple (2013B4A70381G)**

and **Vibhav Joshi (2013B1A10935G)** and is being pursued with technical support from TIFR Mumbai and TIFR National Balloon Facility, Hyderabad.

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## 180 Degrees Consulting

180 Degrees Consulting is an international student consultancy operating in 33 countries which works with social sector organisations to develop innovative, practical and sustainable solutions to modern day developmental challenges. The **BITS Goa branch**, now in its second year of operation, is one of the fastest growing branches worldwide, despite being relatively new.

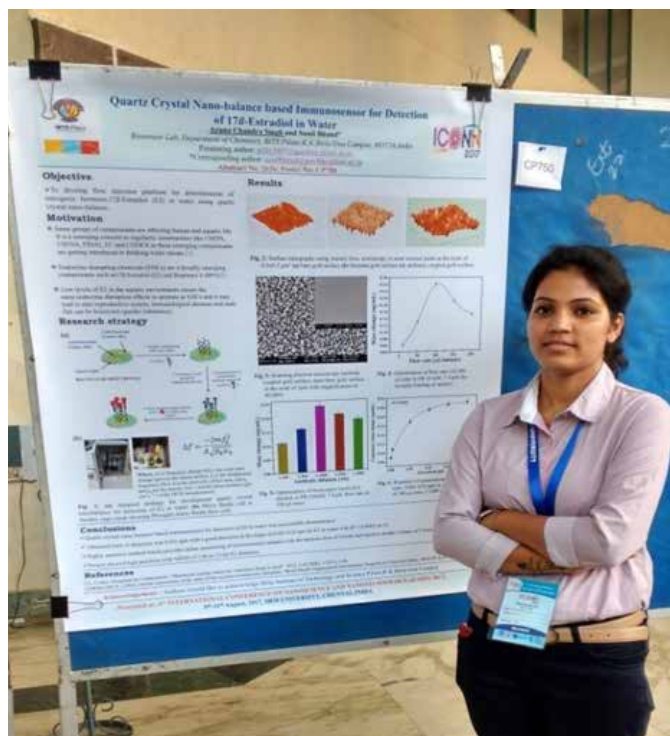
The consultants at 180 DC use their business strategy and management expertise to help socially conscious organizations become more cost effective, efficient and in-turn maximising their social impact. This is an ideal platform to develop and fine tune one's technical and professional skills along with creating value for end stakeholders.

In past one year, they have worked with three Indian NGOs and one Danish non- profit, to help them fundraise, optimize their processes, market research to opt for best technological tools, and expand their activities in India. They are currently working with four top social sector organisations which includes the top NGOs, fundraising platforms in India and a global social organisation which has operations in 170 countries. Owing to the quality of services they provide, client feedback and on-boarding of the biggest and truly global organisations as our clients in the second year of its inception itself, there's no doubt that BITS Goa's name will rise to new heights in international consulting community. In this semester, they will be organising a consulting events which include case study solving sessions and workshops.

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**Ms. Aruna Chandra Singh (2013PHXF0407G)** made an oral presentation “Flow injection electrochemical quartz crystal nano-balance based immunosensing platform for detection of  $17\beta$ -estradiol in water” under young scientist category at the 12th Workshop

on Biosensors and Bioanalytical Microtechniques in Environmental and Clinical Analysis, International Biosensor Conference organized by Italian National Research Council at Rome, Italy, held on 25th to 29th September, 2017. She was awarded International Travel grant by the Department of Biotechnology, Government of India to attend this conference. Ms. Singh is a research scholar working under supervision of Prof. Sunil Bhand who has also received “Best paper presentation award” among more than 700 papers for the paper entitled “Quartz Crystal Nano-balance based immunosensor for detection of  $17\beta$ -Estradiol in water” authored by Aruna Chandra Singh and Sunil Bhand at 4th International Conference on Nanoscience and Nanotechnology (ICONN 2017) jointly organized by SRM University, Chennai, India and Shizuoka University, Japan, on 9th to 11th August, 2017. (Poster no 750).



**Mr. Atul Sharma** presented a poster, “Molecularly Imprinted Polymeric Nanoparticles for Selective Determination of Antibiotic Residue in Milk Sample” authored by Atul Sharma and Sunil Bhand, at the 4th International Conference on Nanoscience and Nanotechnology, held on 9th to 11th August, 2017, at SRM University, Chennai, India. He was ranked



3rd in the Category of Novel Material for Sensing Application.

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**Mr. Arun Kumar Prusty** presented a poster titled "Preparation and characterization of poly ortho Phenylenediamine nanofilm on Indium Tin (ITO) coated glass", authored by Arun Kumar Prusty and Sunil Bhand at 4th International Conference on Nanoscience and Nanotechnology (ICONN 2017) jointly organized by SRM University, Chennai, India and Schizuka University, Japan on 9th to 11th August, 2017.

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**Kishore Gopalakrishnan** (2014B5A40523G) earned a Gold medal in the NGPE (National Graduate Physics Exam 2017) which was conducted by IAPT (Indian Association of Physics Teachers). It is the first time that a BITS student has done so well as to reach the national rank of five.

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**Yash Agarwal** (2015A4PS383G) and **Miheer Joshi** (2015A4PS354G), second year Mechanical Engineering students, under the mentorship of Dr. Kiran D. Mali, participated in the National level "Student mechanism design contest (SMDC 2017)". They won the 3rd prize. This competition was held during 18th National and 3rd International conferences on Machines and Mechanisms (INaCoMM 2017) at Bhabha Atomic Research Centre, Mumbai.

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**Yashasvi Joshi** (2013A8PS751G) graduated this year with a score of 99.80 percentile in CAT 2016. Subsequently, she got calls for interviews from all IIMs and offers for admission to the top IIMs like IIM Ahmedabad, Bangalore, Calcutta, Lucknow and Indore. Currently, she is studying in IIM Ahmedabad (Batch of 2017-19).

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**Rohan Goel** (2014A7PS014G) secured two internships abroad: one in May-July 2017 at Dublin Institute of Technology in Ireland and the other in August-December 2017 at LIRMM, University of

Montpellier in France. Moreover, one of his papers, along with Prof. R.K. Roul, has been accepted in the 7th International Conference on Pattern Recognition and Machine Intelligence ([www.isical.ac.in/~premi17/index.php](http://www.isical.ac.in/~premi17/index.php)).

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**Ketan Pant** (2013A8PS413G) is admitted to Stanford University for his Master's in Electrical Engineering and is pursuing the same starting September 2017. He was also among the 59 of the 1186 applicants to be awarded the K.C. Mahindra Scholarship for postgraduate studies abroad for the year 2017. He was also one of the three students to be awarded the BITSAA Graduate Application Scholarship for 2017.

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**Siddharth Kumar** (2014A1PS545G), a fourth year undergraduate majoring in Chemical Engineering, is currently pursuing his Thesis (Internship) at a joint lab of Massachusetts Institute of Technology, Harvard University and Brigham and Women's Hospital in Boston. Siddharth worked on developing DMD based Bio 3D Printer, Cell phone expansion microscope device, Hand held Bio 3D Printer and Robotic 3D Imaging tool for Bioreactors. His work focused mainly on the Mechatronics aspect of the devices. He published one research paper during this period.

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**Dhanajai Sharma** (2014A3PS197G) is currently working as an Intern at Acoustic Research Laboratory, National University of Singapore.

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**Yash Mehta** (2014A7PS0103G) is pursuing a thesis on Natural Language Processing in Nanyang Technological University, Singapore. It is under Prof. Erik Cambria, Temasek Laboratory from 16th January 2018 to 16th June 2018. In the duration of his thesis, he will work on creating new techniques for POS tagging, possibly Deep Learning based.

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**Akhilesh Anilkumar Siddhanti** (2014B4A70894G) presented two papers in the SPACE 2017 conference. He also published a paper in the IEEE Journal

Filmmaking Club BITS Goa made a short film titled A Late Knock, directed by **Taha Faraz (2015B1A40807G)** which got nominated in the Jaipur International Film Festival 2018 in the Mobile Film category. It was among the 136 films nominated this year out of a total 2019 entries.

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**Vatsal Tolasaria (2013B2A1684G)** won the second Place at the All Goa Open Major Ranking Tennis Singles Championship, at BPS Margao, organized by BPS Club Margao, Goa.

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**Lokesh Garg (2015B3A30418G)** and his team are working on a startup named ZConnect. ZConnect is an online presence of any physical community (College, Societies or Companies). ZConnect has been launched in our campus as well. Currently, they have around 1700 users on campus. With the same idea they participated in 3 competitions in the last semester and succeeded in each one of them. The competitions are: 1) Eureka by Goa Institute of Management (The team got 1st position) 2) Uttishtha'17 by IIM Kashipur (The team got 2nd position) 3) Finnovatica, organized by Fullerton India (The team was selected for the 3rd and final round of the competition for the prize money of 10-25Lakhs).



**Jain Honey Ashok (2014B1A30875G)** got selected for a funded 2-month research internship at Unité de glycobiologie structurale et fonctionnelle (UGSF-CNRS) in Lille, France, from May to July 2017. UGSF selects 2-3 students every year from various

backgrounds, including pharmacy, chemistry and informatics, regionally, nationally and internationally. Her research at UGSF focused on the computational modeling of biomolecular interaction and structural bioinformatics techniques. She worked on Score\_set database of CAPRI protein docking experiment and also redesigned and re-implemented the Score\_set website. During her stay, she also got the opportunity to attend the JOBIM-2017 conference held at Lille.



**Patil Siddhant Vitthal (2015A8PS0475G)** presented a paper titled “Color Analysis and Classification Based on Machine Learning Technique Using RGB Camera” (name of authors: Siddhant Vitthal, Sundaresan Balasubramanian, Pravin S. Mane, page no: 359-363), in IEEE - International Conference on Computational Intelligence and Computing Research (ICCIC) held between 14th to 16th December 2017. The work was done at Central Electronics Engineering Research Institute (CEERI), Chennai, as a part of Practise School - I Programme.





The design idea **UMAMS** (Universal Modular Armoured Mobility Solution) has been selected for the third phase (Quarterfinals) in the INDIA INNOVATION CHALLENGE DESIGN CONTEST 2017 organized by DST and Texas Instruments Inc., anchored by NSRCEL @ IIM Bangalore. The team who contemplated the idea was a two-membered group consisting of **Jayant Jhamb (2015B2A40678G)** and **Shreyash Kumar (2015A4PS0147G)**. The contest was aimed to give a jump-start by sculpting the innovation by university level students with technical support from Texas Instruments, business mentorship from IIMB, funding and prizes of INR 3.8 crores from DST& TI.

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**Unay Shah (2016A3PS0143G)** won the "I am Shutterbug Student Photography Contest" organised by Nikon India. The contest saw 451 entries from students all over India. He received a Nikon D5600 DSLR camera as the winning prize.

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The award winning photo is published on the **front cover of BITScan**, this issue.

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**Arunav Konwar (2013B1A80905G)** was selected to attend and give a talk at Global Community Bio Summit 2017 at Massachusetts Institute of Technology (MIT) at Cambridge, MA, U.S.A, in September 2017. He had also been awarded a six month fully-funded research internship as part of BITS academic thesis at INRIA, France .



**Amit Agarwal (2014A7PS0403G)** was amongst 19 candidates in India to be selected for the prestigious IUSSTF-Viterbi Program, 2017, which provided an opportunity for a summer research internship at the University of Southern California (USC) from 16 May 2017 to 14 July 2017. He worked on the project "Virtually Isolated DETER Experimentation" under the supervision of Prof. Clifford Neuman, Director of USC Center for Computer Systems Security.

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**Sarthak Singh (2014B2A80710G)** was one of the 15 fellows selected from across six countries to intern with Government of Andhra Pradesh. The fellow members were from NUS, Sciences Po Paris and IE University Spain. He got an opportunity to work on "Exclusive Practices followed in State Universities." He received Outstanding Performer Award and fellowship of Rs.1 Lakh by Rashtriya Uchatar Shiksha Abhiyan (RUSA), Government of India. Their work featured in several regional newspapers as well.



## Abhigyaan

Abhigyaan conducted various activities, which are as follows:

### No Food Wastage Day

It had come to the Abhigyaan volunteers' notice that the food wastage in both C and A mess was tremendous. The statistics left them astounded. With the goal of reducing this food wastage, Abhigyaan had organised a NO FOOD WASTAGE event on the 20th of September, 2017. Team members of Abhigyaan made attempts to spread the awareness among the student-community. They made short

slips with messages regarding the value of food and requested students not to waste food. They displayed these messages on the tables and various locations of both the messes and slipped them into the doors of every room of all the student hostels. Club members served food in both messes on No Food Wastage Day, making sure people take only the food they needed, and volunteers positioned near the bins also made sure that no food was wasted. Team Abhigyaan was very pleased to find out that the food wastage on that day was brought down by almost 50%. Motivated by this success they planned to take this initiative forward and hope to further bring down food wastage. Abhigyaan will be conducting the same event on the 20th of every month.

### The Invisible Army



On the 16th of September, Abhigyaan took a step in this direction by organising an interactive session with the female housekeeping staff on campus. Our faculty-in-charge, Dr. Basavadatta Mitra, personally interacted with these women. The primary objective of the session was to educate these women about issues pertaining to women's health, sanitation, nutrition and domestic routines. Most female staff on campus reside in Lamani, Birla and Zuari, thus several common concerns emerged from the interaction. These concerns included lack of proper nutrition, role of women in the household and the lack of hygiene and sanitation.

After the individual interactions, a series of informative videos were shown to the women. The videos included detailed discussions on various

aspects such as dietary issues, iron deficiency and prevention of anemia in women, proper care for pregnant women, menstrual issues and the importance of educating girls. They also included methods to address these issues, which could be easily implemented in every household to mitigate the problems listed during personal interactions.

The session successfully addressed the problems faced by most of the women in the households of the surrounding areas. Thus, if conducted on a regular basis, such interactive sessions can effectively alleviate the condition of these women, and provide them with the tools necessary for their empowerment.

### Children's Day Celebrations

With the idea to give poor kids that one day of enjoyment, giving them reasons to smile and look at the world as a joyous place, Abhigyaan organises Children's day celebration annually for the kids of the slum areas around the campus. It is like a mini carnival for those unprivileged with lots of fun activities, competitions and prizes.



This year's Children's day celebration witnessed a total of about 70 children from nearby localities including Birla, Lamani and the kids staying on the campus itself. The first event was a movie screening for the kids in one of the rooms in the academic building followed by snacks in the mess. Further events took place in the SAC premises which included a variety of fun activities like mikado, painting, handball and many more. Two special events were planned for this year; the photobooth and the bouncy castle. The kids seemed to enjoy all of the events a lot. In the end, prizes were distributed to the winners of different



activities boosting the competitive spirit and also encouraging others to work hard. The event was a success as visible on the faces of the kids as they left with their smiling faces and many happy memories.

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## Nirmaan

The Joy of Giving Week remains to be the highlight of Nirmaan. A number of activities were organised in this week including bringing school children to the campus, visiting orphanages and special schools, organizing various exciting and creative activities including a dinner for children of Zuari at the campus mess, visiting an old-age home and paying respect to the senior citizens by spending some time with their young minds.

### Beach Clean-up Drive

Nirmaan organised a beach cleaning drive in association with Drishti. Student volunteers cleaned Colva beach as part of the drive. Nirmaan installed 12 dustbins provided by Drishti at Colva beach. This initiative was well appreciated by the beach-lovers; as the beauty of the spotless beach was captivating

### Special School Visit

Nirmaan organized a visit to a special school which provides facilities and knowledge to specially-abled children to stand up on their feet to live a respectful life in the society. Nirman volunteers distributed small gifts among the children.



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### Evening of Joy

Around 80 kids from Lamani and Zuari were invited to the campus as part of this activity organised by Nirmaan. Various events such as obstacle race, glitter painting, cube solving and freestyle dancing were organized for them. Snacks were provided to keep them charged. In the end, all of them were awarded

with certificates and presents. It was an evening which was filled with fun and happiness.



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### Nirmaan Stall in Waves

A stall exhibiting different products made by Ashadeep was organised during Waves 2017 for three days inside the campus. The stall showcased products such as gel candles, marble painted bags, handmade paper bags, micron & woollen decorative hangings, cloth bags, satchels & batuas. The main purpose of this stall was to get exposure for the kind of work Ashadeep does and to establish contacts for further orders.



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### Blood Donation Camp

In association with Goa Medical College, Nirmaan successfully organized a blood donation camp in our campus. More than 120 volunteers; students as well as faculty & staff turned up in the event.









# Waves 2017

Waves 2017 edition, which took place from 27th-29th October, dubbed the 'Tale in Two Shades', had itself kick-started with a grandiose inauguration held in the Auditorium. The event began with an address by the Director of the Campus about the importance of cultural events in an academic institution. It was followed by an inspiring speech by the chief guest, Dr. Meenakshi Martins, a renowned actress and psychiatrist. After the talks were the performances. Kala Club was the first to perform, using light to bring their art to life and depicting the story of the Deathly Hallows. The Dance Club too mesmerized the audience with their performance highlighting the evil of depression and its relevance in today's society. But to top it all, the Mime Club executed a standing ovation-worthy shadow play based on the life of J. K. Rowling. Evidently, each of the performances reflected the theme and set the expectations high.

The exuberant promises of Waves 2017 inauguration reached another high on Day 1 as most of the events began on the same day. The morning included the likes of Rangmanch, Dancing Duo and Sizzle and Artathon as well. Round 1 of Contention – the much celebrated BITS debate league – also took place.

The Comedy Night organised on Day 1 of Waves 2017 in association with Comedy Central witnessed an overwhelming audience. With the auditorium jam-packed, Vipul Goyal and Abhishek Upmanyu owned the crowd with their hilarious jokes. Indie Night became the highlight of Day 1. The opening act was performed by BITS Goa's Music society whereas the upcoming band "Knight Shades" was the star of the night. The infrastructure setup for the B-Dome stage became the most talked about subject. The enchanting beats and enthralling lights made the crowd enjoy at their fullest.

The second day of Waves saw many more events, such as a performance from Natyanjali, the group dance event, also a part of the Big 4 events of Waves, Inverse, the newly added poetry slam event, as well as

many other art and music events.

The second night of Waves 2017 was lit up by a live performance by one of the finest music duos in the country – Vishal and Shekhar. People flocked in huge numbers to witness their charismatic performance. Be it through Shekhar's soulful rendition of "Suno Na" or Vishal's peppy hit "Malhari", the men captivated the audience's heart with their music. People danced to the tunes of some of the finest Bollywood hits like "Right Here Right Now" and "Salaam Namaste". This entertainment saga was indeed a fitting end to the happening day and left us wanting more.

The final day of Waves 2017 was one to remember for years to come. It was probably the most exciting as many events came to a conclusion. The battle for the top position got fiercer as contestants gave their all for the final prize.

The grand finale for Waves 2017, however, was Diego Miranda's EDM Night, with an opening set by rising talent Carnivore, and he did not disappoint. Ranked as world's #56 by DJ Mag for a reason, Miranda captivated the attention of the entire crowd through his pulsating and energetic music. The crowd had the best night of their lives, with a set full of soaring synths and pounding bass, and even a debut of his new track that is yet to be heard by the rest of the world.

As the night came to an end, the reality of Waves 2017 nearing its end dawned upon us. Perhaps it was just the right time for the Coffee Cats, the jazz band, to play some wonderfully sober music for all and thus conclude this year's edition of Waves.

Three days full of emotion! Three days full of energy! Three days full of memories! Three days which will never be forgotten!

**Faculty members from various disciplines have been appointed as members of National and International advisory committees / acted as reviewers for books and journals of national and international repute.**

| Faculty               | Department             | Editorial/ Review   |
|-----------------------|------------------------|---|
| Dr. Anirban Roy       | Chemical Engineering   | Reviewed the Journal of Environmental Chemical Engineering and Separation and Purification Technology.  |
| Dr. Sharad Sontakke   | Chemical Engineering   | Editor of International Journal of prevention and control of industrial pollution and International Journal of Chemical Separation Technology. Reviewed manuscripts for Ultrasonics sonochemistry; Applied Powder Technology; Canadian Journal of Chemical Engineering; Journal of Hazardous Materials. |
| Prof. S. D. Manjare   | Chemical Engineering   | Reviewed technical papers for International Conference on Sustainable Development of Energy, Water and Environment System, Dubrovnik. Reviewer for the Journal of Environmental Management. Member of Board of Studies for MIT, Alandi  |
| Dr. Ashish Chittora   | EEE                    | Reviewer of IEEE Transactions on Plasma Science   |
| Dr. Kiran D. Mali     | Mechanical Engineering | Reviewed a paper for Journal of Vibroengineering.   |
| Dr. Meenal Kowshik    | Biology                | Reviewed manuscripts for Biotechnology Progress; Journal of Hazardous Materials; Environmental Science and Pollution Research; Journal of Advanced Ceramics   |
| Prof. Rajesh Mehrotra | Biology                | Reviewed manuscripts for Journal of Genetics; Frontiers in plant Sciences; Plos One and Plant journal   |
| Prof. Mainak Banerjee | Chemistry              | Reviewed several scientific articles including publishers like ACS (JOC, Anal. Chem. Etc.), RSC (RSC. Adv.) etc.  |

**Faculty members from various disciplines have been appointed as members of National and International advisory committees / acted as reviewers for books and journals of national and international repute.**

| Faculty             | Department | Editorial/ Review  |
|---------------------|------------|--|
| Prof. Sunil Bhand   | Chemistry  | Reviewer for Project proposals of SERB N Delhi Govt. of India in the area of Biosensors. Invited expert for evaluation of Indo French project of CEFIPRA New Delhi in the area of Red Biotechnology. Reviewed for the journals J. Agricultural and food chemistry; Analytica Chimica Acta; Biosensors and Bioelectronics; IEEE Sensors; Food chemistry. Invited as external examiner for Ph.D. thesis viva voce at Mahatma Gandhi Medical University, Mumbai, in the area of biosensors. |
| Dr. Debasis Patnaik | Economics  | Editorial Board Member for Modern Management Forum, Kuala Lumpur from 2017-2020. Reviewed paper for Manpower Planning Journal, Back Office of NITI Aayog in mid-2017.  |
| Dr. Toby Joseph     | Physics    | Reviewer for the American Journal of Physics.  |



# introducing new faculty

| Name of Faculty   | Department                             | Designation                  | Area of Research interest   |
|-------------------|--|------------------------------|---|
| Sreejith K.K.     | Humanities & Social Science            | Visiting Assistant Professor | Epistemology, General Philosophy of Science   |
| Sarang C. Dhongdi | Electrical & Electronics Engineering   | Assistant Professor-I        | Wireless communication systems, Wireless Sensor Networks, Underwater Acoustic Sensor Networks   |
| Sreejith V.       | Computer Science & Information Systems | Visiting Assistant Professor | Systems & Computer Networks   |
| Pritanshu Ranjan  | Mechanical Engineering                 | Assistant Professor-I        | Thermal Engineering & Fluid Mechanics   |
| Amol Deshpande    | Chemical Engineering.                  | Assistant Professor-I        | Unmixed combustion for heat transfer applications, Transport Phenomena, Reaction engineering, CFD studies of chemical process systems |

# editorial board

| Name               | Email                            |
|--------------------|----------------------------------|
| Meenal Kowshik     | meenal@goa.bits-pilani.ac.in     |
| Rayson K Alex      | raysonalex@goa.bits-pilani.ac.in |
| Indrani Talukdar   | indranit@goa.bits-pilani.ac.in   |
| Rajorshi Sen Gupta | raajorshis@goa.bits-pilani.ac.in |
| Mohammed Anjal     | f20160238@goa.bits-pilani.ac.in  |
| Anjali Arora       | f20160734@goa.bits-pilani.ac.in  |
| Akshay Gupta       | f20150699@goa.bits-pilani.ac.in  |
| Atishy Rathi       | f20150776@goa.bits-pilani.ac.in  |



# BITS Pilani

K K Birla Goa Campus

# mediaspeak



## BITS Goa to add 10,000sqm academic space in 3-4 years

**Focus on masters programmes**

Principal Dr. P. K. Bhatia, K K Birla Goa Campus, has announced that the campus will add 10,000sqm of academic space in the next three to four years. The campus is currently at its full capacity and the addition of new space is essential for the growth of the institution. Dr. Bhatia said that the campus is currently at its full capacity and the addition of new space is essential for the growth of the institution.

## Chief Minister inaugurates National Metallurgists' Day

**BY A BHIMBHAI**

Chief Minister of Goa, Dr. Manohar Parrikar, inaugurated the National Metallurgists' Day at BITS Pilani, K K Birla Goa Campus. The event was held on the 15th of September, 2014. Dr. Parrikar was accompanied by several dignitaries and faculty members of the campus.

Dr. Parrikar, while addressing the gathering, highlighted the importance of metallurgy in the development of Goa. He said that the campus is a hub of research and innovation in the field of metallurgy. He also mentioned that the campus is a pioneer in the field of metallurgy in India.



## BREAKING Speed barriers!

Mumbai, India: The Indian national team has broken the 100m speed barrier in the 100m sprint race. The team, led by Neeraj Chopra, finished the race in 10.4 seconds, breaking the previous record of 10.6 seconds held by Usain Bolt.

## A's centennial convocation ceremony

**At the convocation ceremony of BITS Pilani, K K Birla Goa Campus, students were awarded their degrees in the hands of renowned historian and biographer, Dr. Ramachandra Guha.**

The 100th anniversary of the founding of BITS Pilani was celebrated with a grand convocation ceremony at the K K Birla Goa Campus. The ceremony was held on the 15th of September, 2014. Dr. Ramachandra Guha, a renowned historian and biographer, presided over the ceremony. He awarded the degrees to the students of the campus.



## BITS Pilani students develop micro satellite

**Students of BITS Pilani, K K Birla Goa Campus, have developed a micro satellite. The satellite is named 'BITS-1' and is the first of its kind in India.**

A team of students from BITS Pilani, K K Birla Goa Campus, has successfully developed a micro satellite. The satellite, named 'BITS-1', is the first of its kind in India. The team, led by Dr. P. K. Bhatia, has spent several months on the development of the satellite. The satellite is expected to be launched in the near future.



## Goa student gets Google scholarship

**A computer science undergraduate at BITS Pilani (Pilani Campus), Rohan Saxena, is one of the six students chosen by Google Inc. for a three-day tech visit to the YouTube headquarters, in California. Saxena is a Charanm resident and will receive a scholarship of \$10,000 from Google.**

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## Dr Ghosh elected Fellow of Royal Society of Chemistry UK

**Dr. P. K. Bhatia, Associate Professor of Chemistry at BITS Pilani, K K Birla Goa Campus, has been elected as a Fellow of the Royal Society of Chemistry, UK.**

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## BITS professor working to help standardise fen's unique flavour

**Dr. P. K. Bhatia, Associate Professor of Chemistry at BITS Pilani, K K Birla Goa Campus, is working on a project to help standardise the unique flavour of fen.**

Dr. P. K. Bhatia, Associate Professor of Chemistry at BITS Pilani, K K Birla Goa Campus, is working on a project to help standardise the unique flavour of fen. The project is aimed at improving the quality of fen and making it more consistent across different regions.



## National-level workshop on 'Experimental Methods in Cognitive Neuroscience' held at BITS-Pilani

**The workshop was held at BITS Pilani, K K Birla Goa Campus, and was attended by students and faculty members from various institutions.**

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