



Indian Institute of Technology
Bhubaneswar



Rhythm

NEWSLETTER

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GREEN AND HEALTHY CAMPUS ENVIRONMENT

Contents

Director's Message	3
IIT BBS Ranking	3
IIT Bhubaneswar Hosts Second Alumni Meet	5
13 th NatFoE Symposium hosted at IIT Bhubaneswar	6
Hon'ble Governor of Odisha Inaugurates the New Halls of Residence	7
8 th Annual Convocation	7
Visit of Delegation of IIT Bhubaneswar to Global Institutions in Singapore	8
54 th Inter IIT Sports Meet	8
New Faculty / Staff	10
Awards & Honours	11
Workshops/ Conferences / Seminars	13
Events at IIT Bhubaneswar	14
Other Activities	17

Plantation by
Prof. R. V. Rajakumar,
Director, IIT Bhubaneswar



DIRECTOR'S MESSAGE



Prof. R. V. Raja Kumar
Director, IIT Bhubaneswar

Dear All,

I'm delighted to share the news with you that IIT Bhubaneswar has been ranked at 20th position, improving from its previous position of 21st (2019) as per the Quacquarelli Symonds (QS) India University Rankings 2020 of the first top 100 Universities of India.

The vision of IIT Bhubaneswar is to be globally well respected for producing outstanding graduates and generating new knowledge. In order to fulfill this dream, we aim to figure among the top 50 Institutions in the world, as soon as possible. In this endeavour, we have been marching ahead and constantly striving to raise the standards and quality in the operations of the Institute including teaching, learning, research, faculty resources and infrastructure. The strategic initiatives taken by the Institute in the recent times have not only resulted in significant improvements in standards, fostering the development of the Institute on multiple fronts, but also resulted in a significant rise in Institute's ranking performance, indicating that our plans are right and we are on the right track. Therefore, we are happy about the ranking performance of the institute. At the moment, IIT Bhubaneswar has the highest B.Tech students intake amongst all the 2nd generation IITs and the best possible campus ambience amongst all the IITs. Possibly, IIT Bhubaneswar is amongst the top 2 or 3 of the IITs for dynamism and all-round activities happening throughout the year. The reflection of the same is glaringly visible on the institute's website. At IIT Bhubaneswar, education is given the highest importance and it is visible as many of our have received top honours in several national level innovation and technology centric competitions and better employment than some of the senior IITs. IIT Bhubaneswar is the only 2nd generation IIT to co-host the Inter-IIT Sports Meet. The institute doesn't compromise on the quality of teaching as well as learning and so adopts very stringent faculty selection standards.

I am also very happy to share with you that the 54th Inter IIT Sports Meet was organized in the high standards and matching participation from participants from 22 IITs with enhanced vigor and enthusiasm. As the Director of the Institute, who took the planning of the entire infrastructure on to own shoulders, it gives me immense satisfaction to see that the Institute has grown to the level of hosting such major events. The institute identified ten areas where it is intending to create cream of centers of excellence with global reputation in a decade or two. The climate research is already the best in the country and the center of excellence in AR-VR has already started yielding significant results.

I'm happy that, despite concentrating more on long term sustainable excellence than on immediate gains in ranking frame works, the Institute is constantly moving up with its rank in various International and National rankings. As per Times Higher Education (THE) World University rankings 2020, the institute has been ranked 601-800 among 1396 institutes across the world and 10th in India, where it has been ranked between 3rd to 7th in citation scores in India. Also as per The Times Higher Education (THE) Young University Rankings, the institution has been ranked 151-200 in the world and 10th in India. In addition, IIT Bhubaneswar has been ranked high by various credible national agencies. The Institute has been ranked 17th by National Institutional Ranking Framework (NIRF)-MHRD, 9th rank by Times Engineering Institute Rankings 2019, and 9th rank by India Today. These are only the debut figures which are only going to steeply rise.

Hearty congratulations and best wishes to all the members of the IIT BBS family.

IIT BBS RANKING

**IIT BHUBANESWAR RANKED 9th BEST
ENGINEERING COLLEGE IN THE COUNTRY BY
INDIA TODAY-MDRA SURVEY**

The weekly magazine, India Today announced its annual list of best engineering colleges in India on 18th May, 2019, in which Indian Institute of Technology (IIT), Bhubaneswar has been ranked '9th' under the category of 'Best Government Engineering College' for the year 2019. The ranking was undertaken by the Marketing and Development Research Associates (MDRA). The parameters broadly covered are- Intake quality & Governance, Academic Excellence, Infrastructure & Living Experience, Personality & Leadership Development and Career Progression & Placement.

**IIT BHUBANESWAR RANKED 131 IN TIMES
HIGHER EDUCATION- ASIA UNIVERSITY
RANKINGS 2019**

'The Times Higher Education Rankings' judges research-intensive universities across all their core missions including teaching, research, knowledge transfer and international outlook. IIT Bhubaneswar has been ranked 131 out of 417 Institutes representing 27 countries in Times Higher Education (THE), Asia University Rankings 2019. From the Indian scenario, the institute has been ranked 13th out of 49 Indian Institutions and 1st in the state of Odisha. The Institute has been ranked 3rd position in research citations in India.



IIT BHUBANESWAR RANKED TOP AMONG THE TEN ENGINEERING INSTITUTES AS PER CAREERS360

It is a matter of immense pride and honour that IIT Bhubaneswar has secured top rank among the Engineering Institutes of the country as per the India's best Universities 2019 ranking issued by eminent media publication Careers360. According to the ranking criteria of Careers360 magazine, Indian Institute of Technology (IIT) Bhubaneswar has been ranked 22nd in India's 'Best University 2019' under 'Public Institutions' category and 10th (AAAA+) in India's 'Best University' 2019 under 'Engineering

Public Institutions' category. Last year Careers360 magazine published state wise ranking in which IIT Bhubaneswar ranked first in the state with a rating of AAAA+.

Speaking on the occasion, Prof. R. V. Raja Kumar, Director, IIT Bhubaneswar said that "IIT Bhubaneswar has taken some key steps on multiple fronts including teaching, learning and research in the last four years. The Institute also has established a number of start-up centres, a Technology Incubation Centre, a Research and Entrepreneurship Park to promote innovation and entrepreneurship. Many of our students have won several innovation and entrepreneurship awards at various national level competitions."

IIT BHUBANESWAR'S NATIONAL INSTITUTIONAL RANKING FRAMEWORK (NIRF) 2019

According to the National Institutional Ranking Framework (NIRF) ranking, IIT Bhubaneswar under the able leadership of Prof. R. V. Rajakumar, Honorable Director, IIT Bhubaneswar (BBS) has been ranked '17' among all the engineering institutes of the country. The Institute is also ranked "46" among all institutions of country under the overall category. In the last



year, the Institute was ranked at "18" in the Engineering and "51" in the overall category. The parameters broadly covered are-Teaching, Learning and Resources, Research and Professional Practices, Graduation Outcomes, Outreach and Inclusivity, and Perception.

INAUGURATION OF BENGALURU CHAPTER OF IITBBS ALUMNI ASSOCIATION

With great pleasure, it is to announce that the Bengaluru Chapter of IITBBS Alumni Association was inaugurated by the Director, Prof. R. V. Raja Kumar on 28th September, 2019 and Ms. Madhavi (a 2013 batch of B.Tech) was nominated as its first president. The notable personalities present on the occasion in addition to the Director, are: Prof. Ashok Mishra, former Director of IIT Bombay and a few Deans of the Institute namely

Prof. R. K. Panda, Prof. Sujit Roy and Prof. V. R. Pedireddi, Pan IIT Alumni, including a large number of IITBBS alumni and Mr. R. Patnaik, the placement officer. Director expressed happiness about the starting of the first Alumni Chapter of the institute outside Bhubaneswar and thanked the IIT Alumni Association for making it happen on his advice. He hoped for a speedy rise in the enrolment of the Chapter in the months to come and hoped for the Chapter to become a very active platform for IITBBS alumni serving in the hinterland of Bengaluru to connect with each other, the Pan IIT network, cooperate, and contribute for the values the institute stands for.

FIRST INTERNATIONAL SYMPOSIUM ON OFFSHORE GEOTECHNICS – ISOG 2019

School of Infrastructure (SIF) of Indian Institute of Technology Bhubaneswar organised an international symposium on offshore geotechnics for the first time in India. The event "First Indian Symposium on Offshore Geotechnics" (ISOG 2019) was held at IIT Bhubaneswar during December 5-6, 2019 under the aegis of the technical committee, TC 209 of International Society for Soil Mechanics and Geotechnical Engineering (ISSMGE); and Indian Geotechnical Society (IGS), Bhubaneswar Chapter. Prof. R.V. Rajakumar, Director, IIT Bhubaneswar was the chief guest of the inaugural function and the symposium started off with welcome address by Dr. Sumanta Haldar, organizing secretary. This was followed by addresses by Prof. R. V. Raja Kumar, Director, IIT Bhubaneswar, Prof. R. K. Panda, Head, School of Infrastructure and Prof. Swarup Kumar Mahapatra, Dean Continuing Education, IIT Bhubaneswar, Prof. G. L. Sivakumar Babu, President, IGS, Prof. Mark Randolph on behalf of Chairman TC 209, ISSMGE, Ravindra. K. Ghanekar, IEOT, ONGC.

The event had theme lectures from eminent international and Indian experts from academics, research institutions and industries. The symposium proved to be an excellent opportunity for practicing engineers, students, academicians, and decision makers to meet and deliberate on the state of the art in offshore geotechnics and future application of screw pile. The event was immensely beneficial for students, academicians, researchers, professionals from various public and private sector and industries. The program ended with vote of thanks by Dr. Shantanu Patra, Joint Organising Secretary.



IIT BHUBANESWAR HOSTS SECOND ALUMNI MEET AT ITS CAMPUS

The 2nd Alumni Meet of IIT Bhubaneswar was hosted in its sprawling campus from 12th-14th April 2019, marking 10 years of IIT Bhubaneswar's glorious inception. The campus was abuzz as the event witnessed active participation from alumni ranging across various batches from B. Tech, M. Tech and Ph.D from all over the country. The Alumni diaspora in the US and the UK also connected over video conference to participate in this celebration. The 3-day long extravaganza started traditionally with the lighting of lamp by Prof. R. V. Raja Kumar, Director of the Institute, Cdr. V. K Jaitly, Chief Guest of the Evening, Shri Swarup Kumar Mohapatra, Dean of Alumni Affairs and International Relations, and other officials from the Alumni Affairs body of the college.

Prof. R. V. Raja Kumar, Honourable Director, IIT Bhubaneswar, Chief Guest of the Evening Cdr. V. K Jaitly, Prof. Swarup Kumar Mohapatra, Dean of Alumni Affairs and International Relations, IIT Bhubaneswar and Ms. Lipsa Bharati, President, Alumni Association welcomed the alumni and appreciated their zeal to assemble for the meet despite their busy schedule and called for greater participation of alumni for the development of the Institute as many hold positions of responsibility in

various government organizations, PSUs, private sectors, academic institutions and have also been recognised as emerging entrepreneurs in the global front, enabling creating of jobs.

Speaking on the occasion, Prof. R. V. Raja Kumar, Director, IIT Bhubaneswar, said, "We at IIT Bhubaneswar are keen that we provide all of our past students a platform to stay connected amongst themselves and also stay committed to the Institute and students across different batches including the present students. Also the Institute likes to leverage from the strength of the growing alumni base by engaging them into Institutional systems including mentoring of students on campus in different innovative ways. We are also proud of the achievements of our alumni. We would also like to thank all our alumni students for showing immense support towards the institute through various initiatives even after passing out.





On the occasion, Cdr. V. K. Jaitly, pledged help by connecting to IIT Kharagpur foundation and PAN IIT associations.

Prof. Swarup Kumar Mohapatra, Dean of Alumni Affairs and International Relations, IIT Bhubaneswar said, "Through its diverse student body, IIT BBSR not only provides its students a holistic education but also instills in them a concern for the society and an appreciation of education as a tool for creating

13TH NATIONAL FRONTIERS OF ENGINEERING SYMPOSIUM (13TH NATFOE) HOSTED AT IIT BHUBANESWAR IN ASSOCIATION WITH INAE

The Inaugural session of the two day thirteenth National Frontiers of Engineering (13NatFoE) Symposium was held on 31st May at IIT Bhubaneswar. The Indian National Academy of Engineering (INAE) organized it in association with IIT Bhubaneswar. Dr. Sanak Mishra, President, INAE was the Chief Guest and Prof. R. V. Raja Kumar, Director, IIT Bhubaneswar was the Guest of Honor. Prof. Indranil Manna, Vice President, INAE and former director, IIT Kanpur was also present at the symposium. Prof. Swarup Kumar Mahapatra, Dean- Continuing Education, Alumni Affairs and International Relations and Prof. S. R. Samantaray, Associate Professor, School of Electrical Sciences (SES) were the Coordinators of 13NatFoE Symposium.

The aim of the symposium was to bring together young and outstanding engineering professionals (aged~30-45 years) from the industry, universities, and research organizations to deliberate upon emerging and leading-edge research and development work in the domain of engineering and technology. Convening engineering professionals and technologists from various fields, a platform for brainstorming the contemporary and futuristic issues related to frontier areas of cross-disciplinary translational research and innovation



social change. The IIT Alumni demonstrate these values and have been supporting their alma mater through various initiatives. It is now time to scale up the alumni engagement manifold. Infact, currently IIT Bhubaneswar hosts regular Ask Your Alumni webinar sessions for students. An entire Alumni online platform for Alumni-Students-Faculty collaboration has been set up by the Alumni Association for seamless connect."



was provided. The overall purpose of the symposium was to interact and achieve synergy at distinctive scientific levels through presentations and discussions in the following four **Thematic areas:**

- Augmented Reality and Virtual Reality (AR & VR)
- Smart Grid
- Advances in Materials and Manufacturing Technology
- Next Generation Transportation Systems

Prof. R. V. Rajakumar, Director, IIT Bhubaneswar emphasized the need for cross-disciplinary research and development to fulfil the needs of Industry, touched upon the grand Science and Technological challenges facing the nation and the world at large and talked about the importance of the thematic areas of Augmented Reality (AR) and Virtual Reality (VR), Artificial Intelligence (AI), Smart Grid, Next-Gen Grid, Micro & Additive Manufacturing, IOT and 5G communication for serving the needs of the modern society. He also briefed about the research activity taking place in the Institute in these areas. He strongly advised for coming up with energy efficient systems that will help to reduce the carbon footprint and pave the way for environment restoration and energy saving. He shared with the audience about how the Institute had accurately estimated the pressure and wind-speed in collaboration with IMD before the arrival of the extremely severe cyclone, "FANI". He also complimented INAE for allowing to host the 13thNatFoE symposium at IIT Bhubaneswar and the resilience

shown by the Institute by hosting the event despite significant damage to infrastructure owing to severe cyclone, "FANI".

The speakers in their inaugural talks brought out very interesting points in their respective topics for meeting the pressing needs of the society. Dr. Sanak Mishra, President, INAE delivered an interesting speech with emphasis on research and development and the role of INAE in the nation building, which was very well received by the audience. About 60 professionals from various institutes and R&D labs, industries & start-ups attended the event and shared their contributions. A large number of research scholars and faculty members of IIT Bhubaneswar also attended the symposium and contributed in the organization of the symposium.

HON'BLE GOVERNOR OF ODISHA INAUGURATES THE NEW HALLS OF RESIDENCE

The Brahmaputra Hall of Residence (BH-2) and Ganga Hall of Residence (GH-2), which were a part of Phase-II construction of IIT Bhubaneswar, were inaugurated on the 15th of July, 2019 by Prof. Ganeshi Lal, the Hon'ble Governor of Odisha in the presence of Prof. R. V. Raja Kumar, Director, IIT Bhubaneswar. The event started with the unveiling of both the halls of residence, cutting of the ribbons and lighting of the lamp by Prof. Ganeshi Lal, the Hon'ble Governor of Odisha.



8TH ANNUAL CONVOCATION



IIT Bhubaneswar celebrated its 8th Annual Convocation on 21st September 2019 in the Community Centre of the Institute at Argul, Jatni. The Chief Guest at the Convocation was Shri K. Sivan, Chairman, ISRO. Prof. R. V. Raja Kumar, Director, IIT Bhubaneswar presided over the function. Also present were the Members of Board of Governors, Senate Members, Deans, Heads of Schools, faculty, staff members of IIT Bhubaneswar and esteemed guests. The Convocation began with a majestic and grand academic procession followed by the National Song.





VISIT OF DELEGATION OF IIT BHUBANESWAR TO GLOBAL INSTITUTIONS IN SINGAPORE

In the endeavour of shaping itself into the cream of global class through a line of spirited actions, IIT Bhubaneswar is on course of hiring capable and bright faculty from the graduates of globally reputed Institutions. In this pursuit, Director Prof. R. V. Raja Kumar along with some of the Deans visited Singapore from 6th to 11th November, 2019, to establish connections with well reputed Institutions. The delegation globally famous and highest ranked universities like Nanyang Technological University (NTU) and National University of Singapore (NUS). The team also visited the highly acclaimed research Institutions under A*STAR to study the faculty hiring and recruitment processes, basic infrastructure, teaching programs and research environment prevailing in those Institutions.

The delegation was well received at NTU with a warm reception. Director, IIT Bhubaneswar, had a fruitful meeting with Prof. Subra Suresh, President, NTU to discuss and establish interactive relations between the two Institutions. In addition, there were broad discussions with Prof. Subodh Mhaisalkar, Associate Vice President, Strategy & Partnerships and Prof. Chowdhury, B.V.R., the Director of NTU-India Global Connect for establishing long term co-ordination in the areas of Education and Research.

Director, IIT Bhubaneswar made presentations on the prospects of faculty recruitment and development and training factors at NTU and NUS to a large number of students pursuing Ph.D., and Postdoctoral research giving them a valuable insight into the future growth prospective at IIT Bhubaneswar.

The delegation also had an interactive meeting with the Pan-IIT Singapore Alumni Association, and participated in its Annual meeting where Director, IIT Bhubaneswar, was a Guest of Honour. The delegation also met Scientists at Institution of High Performance Computing of A*STAR for a possible long term collaboration and chalked out strategic planning to establish joint project submissions so as to enable faculty and student exchange across the Institutes.



54TH INTER IIT SPORTS MEET HELD AT IIT BHUBANESWAR

IIT Bhubaneswar successfully conducted the mega extravaganza 54th Inter IIT Sports Meet– between 14th to 21st Dec 2019 at the Greenfield sports complex with a sense of style and grandeur. This is for the first time in the history of Inter IIT that a second generation IIT was co-hosting the event and in this perspective, it assumed a lot of historical significance. Eight sports were organised by IIT Kharagpur while the rest four were organized by IIT Bhubaneswar. Shri Pratap Chandra Sarangi, Hon'ble Minister of State for Animal Husbandry, Dairying and Fisheries and Micro, Small and Medium Enterprises, Govt. of India was the Chief Guest. Ms. Dutee Chand, Indian professional sprinter was the Guest of Honour. The event was presided over by Prof. R. V. Raja Kumar, Director, IIT Bhubaneswar.



It was a courageous step and exciting to co-host the 54th Inter IIT Sports Meet, the first ever to be co-hosted by a 2nd generation IIT. It is a historic moment for IIT Bhubaneswar for such a grand meet helps in creating a positive and competitive environment within a campus throughout the year among the students. Finally, I wish the events at IIT Kharagpur and IIT Bhubaneswar, a grand success". I hope that this Sports Meet will bring the students, faculty members and staff of all IITs together for upholding the sportsman spirit and help in betterment of the society!

"As the Director of IIT Bhubaneswar," he said, "I got the opportunity and planned the sports infrastructure to be of Greenfield and cater to host the major sports event such as the 54th Inter-IIT sports meet. Today on the successful completion of the co-hosting of the 54th Inter IIT Sports Meet, I would like to congratulate all participating Institutions and teams for the enthusiasm and feel at home expressions they showcased. I am happy that all the participating teams made use of this wonderful opportunity to interact with the rest, put across their best talent and spirit of sportsmanship. This Sports Meet in particular has brought the students, faculty members and staff of all IITs together. All the participating students, coaches, and the sports advisors of 23 IITs have expressed their wonder and praise for the hospitality and facilities provided by IIT Bhubaneswar. They have also expressed their true feeling saying, 'it's the most successful and grand IIT Sports Meet that they have ever attended. What I see and hear today is the realization of what I imagined 3 years back and it is immensely satisfying."

The four events co-hosted by IIT Bhubaneswar were Badminton, Squash, Table-tennis, and Volleyball. About 800 students participated from 22 IITs in the 54th Inter IIT Sports meet. The eight-day sports meet saw students of the institutions participating in four different sports activities at IIT Bhubaneswar. The event also marked some great cultural dance performances by professional dancers in the form of Gotipua and Paika Akhada organized as a part of the inaugural session. The event saw active participation from Deans, Faculty, staff and students.

Shri Tusharkanti Behera, Hon'ble Minister of State (Independent Charge), E & IT, Sports & Youth Services, Govt. of Odisha was the Chief Guest for the valedictory function. The event was presided over by Prof. R. V. Raja Kumar, Director, IIT Bhubaneswar. The event also marked some great cultural performances like Odissi dance by Ms. Aruna Mohanty. This was followed by the result declaration of the winners in their respective sports events.





NEW FACULTY / STAFF



Dr. Avijit Kumar

Visiting Assistant Professor
School of Basic Sciences

Research Interests: Two-Dimensional Materials, Metal-Organic Frameworks (MOFs) Molecular Assembly, Molecular Electronics, Scanning Tunneling Microscopy (STM), non-contact Atomic Force Microscopy (nc-AFM).



Dr. Abhishek Chowdhury

Assistant Professor
School of Basic Sciences

Research Interests: black holes in string theory, "Moonshine" and string cosmology, developments in entanglement entropy, information theory, lower-dimensional gravity.



Dr. Hemant Kumar

Assistant Professor
School of Basic Sciences

Research Interests: Computational condensed matter; Electronic and magnetic properties of 2D materials; Functional materials; Energy storage; Chromatin folding and DNA transcription



Dr. Vipin Kumar

Visiting Assistant Professor
School of Basic Sciences

Research Interests: Electrochemical energy storage: Supercapacitors/pseudocapacitors, Metal-Sulfur (e.g., sodium-sulfur) batteries; Stimuli responsive devices: Chemo-/Chemo-resistive devices (gas sensor, VOCs sensor), thermoresponsive displays; Transmission electron microscopy (TEM, cryo-TEM); X-ray photoelectron spectroscopy (XPS)



Dr. Shambhu Sau

Assistant Professor
School of Electrical Sciences

Research Interests: Modular structure multilevel converters, high power drives and HVDC.



Prof. Rabi N. Mahapatra

Visiting Professor
School of Electrical Sciences



Dr. Mayank Mishra

Assistant Professor
School of Infrastructure

Research Interests: Non-destructive testing of historical constructions; Machine Learning; Neural networks; Landslide - tunnel interaction; Bio-inspired computing; Structural health monitoring; Low cost housing



Dr. Rajeeb Lochan Mishra

Assistant Professor
School of SEOCS

Research Interests: active tectonics, paleoseismology, active fault mapping, tectonic geomorphology, Himalayan geodynamics.



Dr. Swati Verma

Assistant Professor
School of SEOCS

Research Interests: groundwater pollution, hydrogeochemical modeling, contaminant fate and transport and low-temperature geochemistry.



Dr. Sanjeev Dwivedi

Assistant Professor
School of SEOCS

Research Interests: satellite meteorology and numerical weather prediction, monsoon low-level inversion using in-situ and satellite observations and model simulations.



Dr. Bhaskar M.S.

Assistant Professor
School of SMMME

Research Interests: Phase-field modelling; Steels & Composites



Dr. Sivaiah Bathula

Assistant Professor
School of SMMME

Research Interests: Thermoelectrics; Functional Materials; Phase Transformations; Microstructural & Mechanical Characterization

**Dr. Arpan Kabiraj**

Assistant Professor
School of Basic Sciences

Research Interests: Geometric group theory ; Low-Dimensional Topology

**Dr. Aneesh M.**

Assistant Professor
School of Basic Sciences

Research Interests: Operator theory; Operator dynamics; Functional analysis

**Dr. Nijwm Wary**

Assistant Professor
School of Electrical Sciences

Research Interests: Analog CMOS VLSI circuit design; circuit design for high speed serial link; SERDES; on-chip and off-chip interconnects; full-duplex and coded differential signaling.

**Dr. Anush Konayakanahalli Chandrappa**

Assistant Professor
School of Infrastructure

Research Interests: Sustainable pavement materials, Pavement design and analysis, Forensic investigation of pavements, Urban heat island effects and pavements, Pavement evaluation and maintenance, Accident analysis and Road Safety

**Dr. Siddhartha S. Borkotoky**

Assistant Professor
School of Electrical Sciences

Research Interests: Wireless Communications; IoT; Application-Layer Coding; Adaptive Transmission Protocols

**Dr. Mohammad Masiur Rahaman**

Assistant Professor
School of Infrastructure

Research Interests: Development & analysis of thermo-dynamically consistent visco-plasticity model for continuum response of metals, polymers and granular materials; Computational mechanics using finite element method (FEM) and mesh-free techniques; Peridynamics formulation of viscoplasticity, damage and fracture models; Numerical simulations of damage, fracture and fragmentation in metals, ceramics and composites; Variational formulations for dissipative continua and finding conserved integrals; Non-Riemannian geometric approach to model inherently non-local damage.

**Shri Bijaya Kumar Biswal**

Internal Audit Assistant (Senior)

**Shri Anuj Pradhan**

Superintendent Engineer (Civil)

**Shri Vidya Sagar Vajja**

Junior Technical Superintendent

AWARDS & HONOURS RECEIVED BY FACULTY / STUDENTS

Several academic distinctions, honours, distinguished fellowships, associateships, named lectureships, coveted medals and awards have been bestowed on our faculty and students in recognition of their academic achievements, during the last year. Some of the distinctions include:

Prof. Brahma Deo	<p>Best paper award for Industry 4.0 of ICME by Indian Institute of Metals for "Optimization of DRI Production Through Dynamic Modelling and Simulation in TSIL Rotary Kilns".</p> <p>"Partners in Progress" award to Professor Brahma Deo and his students for invaluable contributions at TATA Sponge Iron Limited, Joda, related to accretion and quality control in rotary kilns.</p>
Prof. Uma Charan Mohanty	<p>Received Biju Patnaik Award for Life Time Achievement in Scientific Excellence on 10th August 2018 from Hon'ble Chief Minister of Odisha.</p> <p>Received Odisha Citizen Award 2018 in education from His Excellency Governor of Odisha Prof. Ganeshi Lal</p>



Dr. Ankur Gupta	IEI Young Engineers Award 2019-20 in Production division on May 2019.
Dr. Vasudeva Rao Allu	Elected as a Member of the London Mathematical Society at its meeting held on 9 th November, 2018. Elected as a Member of the National Academy of Sciences India (NASI), Allahabad, 2019. Invited as a Member of the Editorial Board of the Bulletin of Mathematical Analysis and Applications, 2019.
Dr. Tarakanta Nayak	Received Ramanujan Prize for the year 2018 for the research article "Herman rings of meromorphic maps with an omitted value" published in the Proceedings of American Mathematical Society.
Dr. M. S. Manikandan	2019 CVET Most Cited Article Award, by the Biomedical Engineering Society and Springer Nature, Philadelphia. This award comes with a \$1,250 cash prize and will be presented at the 2019 BMES meeting Philadelphia, USA.
Dr. Subhansu Ranjan Samantaray	PACE Fellowship-2019, National Renewable Energy Lab (NREL), USA.
Dr. P K Sahu	Fellow of The Institution of Engineers (India) in May 2018.
Dr. Srinivas Bhaskar Karanki	Joint UK India Clean Energy Centre (JUICE) Early Exchange: Awarded with 2000 GBP to Visit University of Warwick for Exchange program.
Dr. Puspendu. Bhunia and Dr. Rajesh Roshan Dash	Best Practice oriented paper award by the Environmental and Water Resources Institute (EWRI) of ASCE for their paper on "Assessing Possible Applications of Waste Organic Solid Substances as Carbon Sources and Biofilm Substrates for Elimination of Nitrate Toxicity from Wastewater". The award was presented on 23 rd May in the year 2019.
Dr. Syed Hilal Farooq	Awarded with United Nations University Fellowship and visited Iceland during 25 th April - 5 th October 2018.
Dr. Raj K. Singh	Invited to participate as shipboard scientist in International Ocean Discovery Program (IODP) expedition – 383, Dynamics of Pacific Antarctic Circumpolar Current from 20 th May, 2019 to 20 th July, 2019. Elected as Executive council member of The Paleontological Society of India (2018-20).
Dr. Amrita Satapathy	Assistant Professor at the School of Humanities, Social Sciences and Management, attended the 5 th International Conference on Arts and Humanities (ICOAH- 2018) at Colombo, Sri Lanka. She presented a paper titled "Unravelling the 'Wonder' in 'Itesamuddin's The Wonders of Vilayet." She was awarded the Session's Best Presentation Award with a medal of appreciation and a certificate. She also had the honour of chairing two sessions.
Dr. Madhusmita Dash	Assistant Professor at the School of Humanities, Social Sciences and Management was awarded with the International Centre for Integrated Mountain Development (ICIMOD) grant to attend and present a paper in the Regional Expert's Symposium on Ecosystem-based Adoption in the Hindu Kush Himalaya (HKH) held at Chengdu, Sichuan Province, People's Republic of China from 17-19 Dec 2019.
Abhishek Pasula	Abhishek Pasula, M. Tech. Climate Science and Technology (batch of 2019), has been recommended for the prestigious Prime Minister Research Fellowship for PhD in the field of Interdisciplinary Science and Engineering.

WORKSHOPS / CONFERENCES / SEMINARS

Dr. Remya Neelancherry: Attended International workshop on “Sustainable Environment and Energy Development (SEED) 2019” between 16th to 25th May 2019 at National Tsing Hua University, Hsinchu, Taiwan, with full financial support from Ministry of Education, Taiwan.

Dr. Debasis Basu: Presented in-house work at the “2019 Indo-Taiwan SMART CITIES Workshop” at National Chiao Tung University (NCTU), H-Sinchu City, Taiwan during April, 22-26, 2019. The trip was sponsored by the DST, Gol.

Dr. Purnyashree Panda Presented a paper titled “Transcultural Memory as a Leitmotif in Jennette Armstrong’s Whispering in the Shadows” in the Third Annual Memory Studies Conference in Madrid from 25-28 June, 2019, held at Complutense University of Madrid, Spain.

Dr. R. K. Singh, Assistant Professor, SEOCS has been invited to join onboard the International Ocean Discovery Program (IODP) Expedition 383 as a shipboard scientist. The expedition consists of representatives from around the world from many institutions and will explore the south Pacific Ocean. The expedition begins on May 20th from Punta Arenas, Chile and returns on July 20th. The goal of the expedition is to study the Pliocene-Pleistocene atmosphere-ocean-cryosphere dynamics of the Pacific Antarctic Circumpolar Current (ACC) and their role in regional and global climate. Dr. Singh is the only Indian representative in the expedition bridging a multitude of expertise and nationalities on a prestigious international forum.

Ms. Panchali Bhattacharya Research Scholar of School of HSS&M attended the 6th International Conference on Arts and Humanities 2019: Decolonization in Arts and Humanities at Kuala Lumpur, 19-20 September 2019. She presented a paper on ‘Eco-Myths and Indigeneity in Easterine Kire’s ‘When the River Sleeps’ and Mamang Dai’s, ‘The Legends of Pensam’. She also won 2 awards- The Best Presenter in the Session ‘Folklore and Tradition’ and the Best Student Presenter of the Conference.

Gourav Saha, M. Sc. Atmospheric and Ocean Sciences (2nd Year), was selected for the prestigious TIGP – International Internship Program at Academia Sinica, Taipei, Taiwan. He visited Academia Sinica between May 1st and June 30th where he worked on orographic and oceanic controls on rainfall events in Taiwan.

Tapajyoti Chakraborty, PhD student in SEOCS, was selected to attend the 2nd ICTP Summer School on “Theory mechanism and hierarchical modeling of climate dynamics” in the International Center for Theoretical Physics, Trieste, Italy. Tapajyoti will be attending the workshop between July 1st – 12th in Trieste.

GIAN PROGRAM ORGANISED

IIT Bhubaneswar organised a GIAN program on “Physics and biology inspired optimization, machine learning, data mining techniques and their applications in big-data, medical science, and engineering disciplines” from May 13th to 22nd, 2019. Needless to say that this is one of the most important and nascent technology area that is fast growing. GIAN is a flagship program of MHRD, Government of India, which attracts renowned academic leaders from all over the world for short term specialized courses in India, thereby giving a unique opportunity to Indian scholars to interact and network with them. Dr. Zohar Nussinov, faculty member from Washington University in Saint Louis (USA) was the main faculty for this course. He was supported by Dr. Bamdev Mishra (from Microsoft Office India Intelligence team), Dr. Kisor Kumar Sahu and Dr. Kodanda Ram Mangipudi (faculty members from the School of Minerals, Metallurgical and Materials Engineering, IITBBS), Dr. Manoranjan Satpathy and Ms. Sibani Tripathy (from the School of Electrical Sciences, IITBBS). IIT Bhubaneswar was determined to organise this program as per schedule despite the severe cyclonic storm “Fani,” which is India’s 39th strongest tropical cyclone in last 20 years. 51 participated from all over the country out of which 5 are faculty members from other institutes. This is a proof of the fact that IIT Bhubaneswar is determined to further its academic leadership irrespective of the circumstances.



EVENTS AT IIT BHUBANESWAR

INDEPENDENCE DAY 15TH AUG, 2019

IIT Bhubaneswar celebrated the 73rd Independence Day at its Permanent Campus in Argul. The Director, Prof. R. V. Raja Kumar, hoisted the National Flag and offered floral tributes to the Father of the Nation and Bharat Mata. He delivered his Independence Day address and this was followed by the national anthem. The faculty, staff, and students of the institute participated in the celebrations with much patriotic fervour.



NATIONAL EDUCATION DAY CELEBRATIONS

National Education Day was celebrated on 11th November, 2019 on the eve of birth anniversary of Maulana Abul Kalam Azad– freedom fighter, eminent educationist and the first Union Minister of education. The day started by offering floral tribute to Maulana Abul Kalam Azad by Prof. Swarup

Kumar Mahapatra, Director in Charge, and Col (Dr.) Subodh Kumar, Registrar, IIT Bhubaneswar and other members of the Faculty, Staff and students. On this occasion, an online essay competition on the topic - “Importance of Education and Nation’s Commitment to all Aspects of Education” was conducted. A seminar was also organized at the Lab Complex of IIT Bhubaneswar on the topic, “CD Fluidics and extreme point of care” by Prof. Marc Madou from the University of California. The seminar was well attended by faculty, staff and students.



IIT BHUBANESWAR TO PARTNER WITH ASSOCIATION FOR OVERSEAS TECHNICAL COOPERATION AND SUSTAINABLE PARTNERSHIPS (AOTS), JAPAN

IIT Bhubaneswar is going to partner with Association for Overseas Technical Co-operation and Sustainable Partnerships (AOTS), an organization for human resources development to promote technical co-operation. The AOTS is established under the Japanese Government, Ministry of Economy, Trade and Industry (METI) and currently functions as their policy implementations organizations in the field of Industry and HR Development in developing countries as well as implements some self-sustainable-social business based projects in cooperation with Japanese companies.

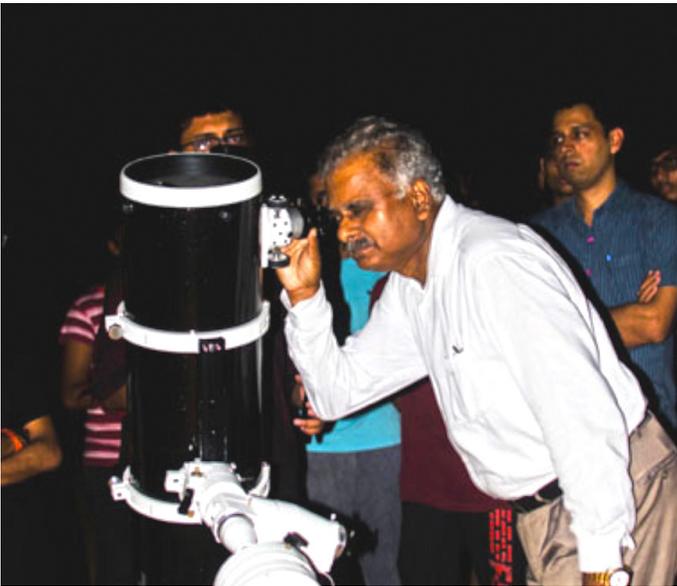
Welcoming the delegates, Prof. R. V. Rajakumar, Director, IIT BBS said, “We would want to explore the broader options for the benefit of the institution. The synergies are going to be greatly beneficial for the both the nations for their new technological developments which will be of paramount importance. IIT Bhubaneswar would also explore collaboration in areas like Robotics, Augmented and Virtual Reality, Energy Climate Change and other areas.”

To start with, AOTS will be establishing the projects to bridge Japanese companies and students of IIT Bhubaneswar through Japan Desk, Japan Week and Japan Languages training.

OBSERVATION OF INTERNATIONAL SPACE STATION FACILITATED

NISER Astronomy Club in collaboration with Nakshatra, the astronomical society of IIT Bhubaneswar successfully organized a live astronomy session at the MHR Sports ground of IIT Bhubaneswar located in its sprawling campus at Argul, on 17 May, 2019. The aim was to facilitate observation of the transit of the International Space Station (ISS) to gaze the Moon. It was successfully captured through one of the five telescopes having an aperture of 11" as the ISS was passing through Jatni skies.

The event was attended by about 100 students, faculty, staff, and members of their families. The participants were mesmerized by the beauty of the Craters of the Moon, Sirius Binary Star System, Orion Nebulae and various other astronomical objects gazed through the Telescope.



ANTI-TERRORISM DAY OBSERVED

IIT Bhubaneswar observed Anti-Terrorism Day on May 21, 2019. The pledge was led by Prof. R. V. Raja Kumar, Director IIT Bhubaneswar along with the Deans, Registrar, Heads of Schools, Faculty and Staff members to 'fight the forces of disruption threatening human lives and values'. The objective of the event was to wean away the youth from terrorism and the cult of violence by highlighting the sufferings of common people and showing as to how it is prejudicial to human interest and humanity.

Prof. R. V. Raja Kumar, Director, IIT Bhubaneswar addressing the audience on the occasion said that the scourge of terrorism affects innocent lives across the globe. He emphasized that our country believes in the concept of "Vasudhaiva Kutumbakam", a philosophy that tries to foster an understanding that the whole of humanity is one family, in true spirits and never exhibited territorial interests in the history and never supported terrorism. He called upon to express his solidarity to fight against the forces of disruption threatening human lives and values in all its forms and manifestations, and to disseminate the message of universal peace, social harmony and understanding among all fellow human beings.





A TWO-DAY SHORT COURSE ON DISCRETE ELEMENT MODELLING AND ITS APPLICATION

A two-day Short course on "Introduction to Discrete Element Modelling and its Applications" has been conducted at SMMME on 4th and 5th April, 2019, by Dr. K. R. Mangipudi and Dr. K. K. Sahu.

Granular materials are encountered in several wide variety of technologically important applications such as mining, mineral beneficiation, pharmaceuticals, powder materials processing, batteries, nuclear engineering and additive manufacturing. Discrete Element Method is a powerful tool to study such particulate assemblies of granular materials for efficient design and safe operation of industrial equipment in several engineering applications. This course aimed to provide an introduction to DEM to a first-time learner. Starting with the basic interaction of contacting particles, more advanced topics like heat and mass transfer through granular assemblies were discussed. Dr. Yixiang Gan, a faculty from University of Sidney, Dr. R. K. Annabattula (IIT, Madras), Mr. Rajan Kumar, Head R&D, NMDC HYD, and Dr. K. K. Sahu (IITBBS) have delivered the lectures. A total of 71 participants including faculty, research scholars, and students from various places in Odisha have made the course a success.



AWARENESS PROGRAMME ON SUBSTANCE ABUSE

The Counseling Services Team (CST) organized an 'Awareness Programme on Substance Abuse' for the student community on April 5th, 2019, under the supervision of Narcotics Control Bureau (NCB), Bhubaneswar, Odisha. The Superintendent of NCB, Mr. Pranit Sarma presided over the session and elucidated

different aspects of substance abuse. He also shared some case studies of young students suffering from addiction in order to help the students relate better and get clarity on how substance abuse affects quality of life.

RESEARCH CONTRIBUTIONS OF IIT BHUBANESWAR FOR DIGITAL INDIA DAY

'Digital India' is a flagship programme of the GOI initiated with a vision to transform India into a digitally empowered society and a knowledge economy. In this backdrop, on the occasion of 5th Anniversary of Digital India, IIT Bhubaneswar in association with Software Technology Parks of India, (STPI) organized a visit of press & media to its Centers of Excellence in "Virtual and Augmented Reality for Immersive Visualization" (VARCoE), the school of Electrical Sciences and the Design and Innovation Center at its permanent campus on 1st July, 2019. These centers have showcased R&D work with focus on key areas in digital technologies ranging from Artificial Intelligence (AI), Internet of Things (IOT), Digital Image Correlation, and 5G cellular.

Prof. R.V. Rajakumar, Director, IIT Bhubaneswar pressed the need for cross-disciplinary research in R&D to fulfill the needs of Industry and talked about the importance of new age technologies. He also briefed about the research activity taking place in the key areas of digital technologies.

CONSTITUTION DAY CELEBRATED AT IIT BHUBANESWAR

Indian Institute of Technology, Bhubaneswar celebrated the "Constitution Day" or "Samvidhan Divas" on 26th November, 2019 at the community centre to commemorate the adoption of Constitution of India as per the directives of the Ministry of HRD, Govt. of India. The chief guest of the event was Hon'ble Justice Dr. Choudhury, D. P., Retd. Judge Orissa High Court. Prof. R. V. Raja Kumar, Director, IIT Bhubaneswar welcomed the audience and presided over the function. Registrar administered the reading of the preamble to the Constitution followed by integrating the live telecast of the commemoration function of Samvidhan Divas address by Shri Ram Nath Kovind, Hon'ble President of India, Shri Venkaiah Naidu, Hon'ble Vice President of India and Shri Narendra Modi, Hon'ble Prime Minister of India from Central Hall, Parliament House. The audience got an opportunity to listen to the

speeches delivered by the Hon'ble President, Vice-President, and Prime Minister. The event saw active participation from faculty, staff and students. The live telecast was followed by singing of the National anthem, and the vote of thanks proposed by Debraj Rath, Jt. Registrar, IIT Bhubaneswar.



SUSTAINABLE ENVIRONMENT AWARENESS CAMPAIGN BY STUDENTS OF IIT BHUBANESWAR

The student committee at Wissenaire, the Annual techno-management fest of IIT Bhubaneswar organized an environmental awareness campaign on 1st Dec, 2019. The students organized the campaign in prominent malls like BMC Bhawani Mall, Pantaloons, Esplanade in Bhubaneswar as a venue to spread awareness about the importance of planting trees and usage of paper bags instead of plastic ones for creation of sustainable ecosystem for all. The motive behind this campaign was to promote a greener ecosystem along with providing a pollution-free atmosphere to the residents and to recreate the greenery lost during the course of super-cyclone, "Fani", that hit the state on 3rd May, 2019. Prof. R. V. Raja Kumar, Director, IIT Bhubaneswar and Shri Ananta Narayan Jena, Member of Legislative Assembly (MLA), Odisha graced the venue of the campaign and complimented the efforts of the students.

The distribution of the plant saplings and paper bags was successfully carried out as per the planned schedule across major malls of Bhubaneswar. Through such events the students and citizens of the city are reminded of the need to intimately connect with nature in their efforts of building a green environment in and around Bhubaneswar.

OTHER ACTIVITIES

SWACHH BHARAT PROGRAMME OBSERVED ON GANDHI JAYANTI

Swachh Bharat Abhiyan was observed at IIT Bhubaneswar on 2nd October, 2019, at its permanent campus to commemorate the birth anniversary of the Father of the Nation, Mahatma Gandhi. Prof. R. V. Raja Kumar, Director of IIT Bhubaneswar, offered floral tribute in the presence of other faculty, students and staff. The pledge on "Swacchta" was administered by the Registrar, after which the Director addressed the gathering. The students at IIT Bhubaneswar presented a short play based on the theme 'cleanliness.' The students, faculty and staff members of IIT Bhubaneswar participated in the Cleanliness Drive to clean outside the Main gate, work place and Campus as the part of Swachh Bharat Abhiyan.





MEDICAL CAMP IN COLLABORATION WITH AMRI HOSPITAL

From the time of its inception, IIT Bhubaneswar has been consistent in its commitment to offer comprehensive medical care and wellbeing of its students, staff including faculty, officers, non-teaching members and dependant of the staff. The Medical camp was organized on 28th April, 2019 by the Medical Unit of IIT Bhubaneswar in collaboration with AMRI Hospital, Bhubaneswar at the Community Centre located in its campus.

A series of tests viz. Free Blood Sugar, ECG (on doctor's advice), Pulmonary Function Test (PFD), Eye Check Up were undertaken between 9am-2pm. The Faculty members, officers, staff members and their dependants were checked by a team of Cardiologists, Medical Specialists, Gynaecologists and Ophthalmologist from AMRI hospital. The camp witnessed active participation from a total of 112 faculty, officers and staff members including their dependants.



UNNAT BHARAT ABHIYAN (UBA), IIT BHUBANESWAR

MASSIVE PLANTATION DRIVE AT PRIMARY SCHOOLS

The Horticulture Department along with National Service Scheme (NSS) team, IIT Bhubaneswar under the Unnat Bharat Abhiyan (UBA) conducted a plantation drive on 30th August, 2019 across all primary schools of Khudupur, Podapoda, Kansapada villages. This was done in association with Youth Booth, a group of youth volunteers. Khudupur, Podapoda and Kansapada are three of the six villages adopted by IIT Bhubaneswar under UBA.



CLEANLINESS AND ANTI-SINGLE USE PLASTIC DRIVE

On September 14, 2019, UBA team conducted a massive cleanliness and anti-single use plastic drive in the shops at Jatni and Argul High School. The aim of this campaign was to spread awareness about the harmful effects of single-use plastic. UBA team distributed cloth bags and collected plastic bags from them instead. Similar campaign was also done in Argul High School. Besides these activities, large trash bins were distributed at all the schools adopted by the institute under UBA.

SANSKARBARG: These are weekly sessions of yoga, creative games, songs and story-telling. It has been conducted since 13 January 2019 by the student volunteers along with some staff members.

PAINTING AND QUIZ COMPETITION

A painting and quiz competition was organized at Khudupur Upper Primary School on 10th August, 2019. The school kids participated whole-heartedly in both the competitions. Drawing competition was conducted at two levels: Junior (Class IV - VI) and Senior (Class VII - VIII), on the theme "India".

GLIMPSES OF THE GRAND 54TH INTER IIT SPORTS MEET CO-HOSTED BY IIT BHUBANESWAR



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