

## Convocation Report by Prof. R V Raja Kumar, Director

Good Morning! Dr.N R Narayana Murthy, Founder of Infosys and Chief guest of the even, Dr.Rajendra Prasad Singh, hon'ble Chairman Board of Governors, esteemed Members of the Board of Governors and the Senate; esteemed members of the Faculty, Staff of the Institute, distinguished guests, dear graduating and other students, their round parents and guardians, representatives from the media both print and electronic, ladies and gentlemen!



It gives me immense pleasure to extend a very warm welcome to you all to the 10th convocation of IIT Bhubaneswar.

As you are aware, the most unprecedented Covid-19 Pandemic has changed our lives, the way we do our job functions, and the way we provide education to our students. The institute is committed to continue to provide global-class education without any compromise on the quality even at the time of a Pandemic situation. Present convocation too is an example. I feel proud to share with you that IIT Bhubaneswar, showed huge resilience in successfully completing the last academic year in time and by maintaining highest of standards through its path finding innovations.

This year is the twelfth year of existence of IIT Bhubaneswar. I would like to take this opportunity to present some of the notable achievements of the institute, made during the last academic year, with the dedicated spirit of achieving excellence, in teaching and research.

### 1. Key Achievements of the Institute

IIT Bhubaneswar showed huge resilience in successfully completing the curriculum maintaining highest of standards. Some of the achievements recorded by the institute during 2020-21 are as follows.

- Honoured with the “University of the Year” award by FICCI in 2021.
- Provided education in uncompromised standards and timely during the pandemic through several unique innovations such as the following:
  - Switched to live streaming of lectures without loss of even a single day,
  - Devised and successfully applied a robust and uniquely innovative method of conducting conventional pen and paper exams with invigilation, by online. During the last year the outgoing students have earned their degree in full, taking the end-semester examinations and performance evaluation as usual, despite the pandemic. The institute didn't have to make any changes in the academic regulations except for reducing the 3 hr examination to 2 hrs..
  - Conducted Lab classes in an innovative & unique hybrid mode;
  - Conducted extra-academic and yoga activities in virtual mode,
  - Organized convocation with real participation of students in Actual Reality.

- Lectures from international faculty from across the globe and recruitment of Faculty of Foreign Origin.
- Creation of a 42 acre sports complex at international standards, possibly the Best of the IIT's.
- Green and Wellness campus: 45,000 trees planted in the last 5 years, energy harvesting, cycling culture, water harvesting and Eco-friendly Waste disposal
- A unique and unparalleled outreach program for other students and school children of Odisha and neighbouring states under UBA.

### **Curriculum Review - 2021 at IIT Bhubaneswar and the context of NEP– 2020:**

- The curricular review of IIT Bhubaneswar is underway. The Director himself volunteered to create the first version. The important features of NEP– 2020 being incorporated include:
  - Multidisciplinary and a holistic education across sciences, social sciences, arts, Humanities, and sports
  - No hard separations between arts and sciences, curricular and extra-curricular activities, vocational and academic,
  - Credit transfer from reputed universities, flexibility for choosing courses as per a chosen life long career path according to interest and talent,
  - Ethics and human & constitutional values,
  - Vocational and life skills, respect for diversity and pride in India,
- Important HSS courses are introduced keeping revisiting and adopting traditional Indian education system. Some HSS courses that have been already introduced over the last 5 years, sharing the vision behind NEP-2020 include, Ethics and Epics, Indian Mathematics, Introduction to Indian Philosophy, Indian Philosophical Perspectives on Substance , Introduction to Sanskrit, German and Comparative Linguistics , Odissi dance, etc.

### **2. Performance of the Institute in Institutional Rankings:**

IIT Bhubaneswar has been working on very fundamental aspects of academics to be amongst the global cream and to help the nation in re-establishing its glorious past than in obtaining a good rank in the ranking frameworks. However, the strategic initiatives taken in recent times have not only fostered the development of the institute but also resulted in a significant position in the institute's ranking performance in both National and International scenario as follows.

#### **National:**

Ranking system	NIRF Engineering	Times Engg	India Today	Week Hansa	Times Research Capability
Rank of IITBBS	28* (due to a few data errors)	1	11	15	1

**International:**

Ranking system	QS World	QS World Asia	Times HE World	Times HE Asia and Young University	Times HE Impact
Rank of IITBBS	701-750	233	1001-1200	251-300	801-1000

**3. Academic Programmes:**

The Institute offers 6 Nos. of B.Tech., 9 Nos. of Dual Degree Programmes, 5 Nos. of M.Sc., 14 Nos. of M.Tech Programmes and Ph.D Programme in its 7 Schools. The admission for the academic year 2021-22 in to the courses Ph.D., M.Tech., and M.Sc., degrees took place on 29th and 30th July, 2021. BTech students are expected to join by November 2021. The current student strength is 2490 (B.Tech. – 910(excluding UG 1st Year), Dual-Degree – 380 (excluding Dual Degree 1st Year), M.Tech. - 362, M.Sc – 201, Ph.D – 374, including 10% EWS and supernumerary admissions for women students). The Institute has a spectrum of 135 full-time faculty members, 19 regular officers, 1 officer on contract on scale, 7 officers on consolidated pay and other supporting staff.

**Joint PhD Programme with University of Auckland:** An international research initiative was taken up with the University of Auckland to foster academic exchange and cooperation between the two institutions in the potential domains namely Civil and Environment Engineering, Electrical and Computer Science and Engineering etc. to explore the possibility of Joint-Ph.D. programme, internship and collaborative research projects.

**Multidisciplinary Education:** Sharing the expressed in the NEP 2020, the institute has been promoting holistic and multidisciplinary education, to its engineering students. Institute has been offering diverse courses as explained in Section-1. in social sciences and performing arts, such as Introduction to Indian Philosophy, Substance in Indian Philosophy, Mathematics in India (ancient and modern) and “Functional and Communicative Sanskrit, Odissi dance” besides many cutting edge technology courses in AI, Data Sciences, Nano Science and Augmented and Virtual Reality.

**Rejuvenation and Orientation programmes for Fresh Students:** The Orientation Programme for the new entrants (PhD / M.Tech / M.Sc) was conducted on virtual mode on 6th August 2021. Institute has a plan to rejuvenate the students by organizing programmes from the Art of Living Foundation after they come to campus. This programme was organized for the freshers for the entire semester, last year. Student activity clubs and counselling cells organized interactive sessions with the freshers introducing them to different activities of the institute gymkhana by online.

## 2. Research & Development Activities:

**Research and Consultancy Projects:** The Research and Development activities have made rapid strides with time, and a total of 100 sponsored research and consultancy projects worth about Rs. 18.44 Crore have been sanctioned to the Institute during the year (2020-21) from different funding agencies. Besides these sanctioned projects, 86 project proposals worth about Rs. 58.48 Crore have been submitted which are in pipeline.

The major funding agencies are DST, MOE, CSIR, UGC, ISRO, DRDO, ICSSR, DAE, CPRI, DAC, DBT, Deity, NALCO, NPOL, IUSSTF, INCOIS, MoES, MoWR, IITM, NCAOR, BRNS KPIT, P&C Dept.-Govt. of Odisha etc. Our faculty members participated in major initiatives of MOE like IMPRINT, Uchhatar Avishkar Yojana (UAY), Swachhta Action Plan, FIST and Unnat Bharat Abhiyan (UBA), ATB, DST-FIST etc.

Some of the recent Industry-Academia collaborations and R&D initiatives as well as projects connected to the National/State Missions are worth quoting are as follows:

- Research Collaboration MoU was signed with Army Air Defense College, during August 2020 on carrying out a research project on Add on Radar for Jamming UAVs. Different communication technology relevant to UAS will be studied and a prototype C-UAS will be developed.
- The Institute is also actively participating in the national R&D missions namely: “IMPacting Research, Innovation and Technology (IMPRINT)”. with seven projects under IMPRINT. Besides the sanctioned projects, a total of 14 proposals worth Rs. 10.61 crore under IMPRINT are in pipeline.

**Research Areas of Thrust:** The institute has defined the following nine areas of research thrust with the objective of making globally well recognized contributions in these areas:

- Climate change and Extreme Events,
- Energy,
- Augmented Reality and Virtual reality (AR-VR),
- Environment and Sustainability,
- Data Science and Machine Intelligence,
- IoT and next-generation networks,
- Water,
- Micro & Nano Manufacturing and Sensors,
- Nanoscience and technology.

Our climate science group is very unique, collaborates with, University of Massachusetts, Hurricane Research Department of NOAA, USA, Purdue University, IMD and INCOIS and already enjoys global reputation. It has predicted the course of recent cyclones, Yaas, Amphan, Fani, and Hudhud, very accurately about 5/6 days in advance with customization of latest models to Indian conditions. At the moment it is the only alternative to IMD that helps verification.

The Augmented and Virtual Reality Center of excellence is a unique center in the country helping the nation in developing an eco-system in this strategic area. The center has sanctioned and supporting nine R&D projects. The Centre also has organized a grand hackathon on ARVR during 9th to 10th Jan 2021 with 4 winners from across the country.

**Collaborative Research:** Collaborative Research: The Institute is very actively engaged in collaborative research with many reputed universities and research organizations across the world. Some of the collaborating universities include, University of Western Ontario, London; The University of Massachusetts Dartmouth; University of North Texas, USA; Warwick Manufacturing Group (WMG) of the University of Warwick, UK; The University of Buffalo the State University of New York, USA (SUNYAB); Dr. Dash foundation, USA; Engineering Center of Materials Manufacturing, Shanghai Jiao Tong University, China; University of Auckland and many other reputed universities for joint research, student internship and faculty. The institute also had an innumerable number of distinguished visitors for academic, research and other collaborative programmes.

**4.A- Research Publications & Patents:** During the last year (2020), the institute contributed to creating new knowledge by publishing more than 581 research articles including, 458 research papers in both National and International Journals of repute and high impact factor, 17 Book-chapters, and 106 papers were presented in various national and international conferences in India and abroad

The school-wise publication list during the last one year is as follows:

School	Book Chapter	Journal publications	Conference publications	Total Publications
Basic Sciences	1	189	7	197
Earth, Ocean & Climate Sciences	2	47	2	51
Electrical Sciences	3	52	65	120
Humanities, Social Sciences & Management	0	8	0	8
Infrastructure	10	66	14	90
Mechanical Sciences	1	52	9	62
Minerals, Metallurgical & Materials Engineering	0	44	9	53
<b>Total</b>	<b>17</b>	<b>458</b>	<b>106</b>	<b>581</b>

**4.B: Patents :** About 49 patent applications have been filed by the Institute faculty and research students so far and the number is rising.

## 5. Faculty Matters:

**International Faculty at IITBBS** – In order to offer education of international flavour to its students and to help the nation in re-establishing its glorious past, IIT Bhubaneswar regularly recruits faculty of foreign origin successfully to teach at the institute over long terms on Indian salaries. This endeavor has been unique and is ahead of the SPARC and VAJRA schemes. In 2021, almost 42 nos. of International Professors gave 110 nos. of lectures for the 77 nos. of courses in the different schools/departments.

**Appraisal about IIT Bhubaneswar at Acclaimed Universities:** IIT Bhubaneswar has been adopting standards even higher than some of the senior IIT's for faculty selection, though it may take longer to get good numbers. A team of the Director and Deans visited in the past USA and Singapore Universities and institutes with the objective of motivating very bright Postdoctoral and PhD students to apply for the faculty positions at IIT Bhubaneswar and to foster academic linkages.

**Teaching Excellence and Outstanding Service Awards:** In an endeavor to create an environment of teaching-learning of high order, faculty members who got highest rating by student feedback have been honored with teaching excellence awards and Director's commendation awards for Outstanding Services & Research Work. The details of the awardees are mentioned below-

### Teaching Excellence Awards for 2020:

1. Dr. Srinivas Pinisetty, Assistant Professor, School of Electrical Sciences for overall best performance.
2. Dr. Nirmalendu Acharya, Assistant Professor, School of Basic Sciences.
3. Dr. Anoop Thomas, Assistant Professor, School of Electrical Sciences
4. Dr. Rajakumar Guduru, Assistant Professor, School of Humanities and Social Sciences

### Director's Commendation for Outstanding Research 2020

1. Prof. V.R. Pedireddi, Dean, Student Affairs
2. Dr. Rajan Jha, Associate Professor, School of Basic Sciences
3. Dr. Subhransu Ranjan Samantaray, Associate Professor, School of Electrical Sciences
4. Dr. Venugopal Arumuru, Assistant Professor, School of Mechanical Sciences

### Director's Commendation for Outstanding Services 2020

1. Dr. Shantanu Pal, Warden
2. Dr. Barathram Ramkumar, Chairman, Computer & IT Services Cell
3. Dr. Srinivas Bhaskar Karanki, Professor-in-Charge (Counselling)

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

Prof. R. K. Panda	<ol style="list-style-type: none"> <li>VAJRA Faculty Award 2020 of SERB, DST with Prof. C. R. Ray, Director, Nebraska Water Centre, USA as the VAJRA Visiting Faculty.</li> <li>DUO-India Professor Fellowship 2020 with Prof. Andras Bardossy, University of Stuttgart, Germany as the collaborator.</li> </ol>
Prof. P. V. Satyam	Honored for the year 2021-2029 (for two terms, 4 years each term): <b>Executive Member of Committee of Asia Pacific Societies for Microscopy, CAPSM</b> – a part of International Federation of Societies for Microscopy (full member of scientific council – UN).
Dr. Remya Neelancherry	<ol style="list-style-type: none"> <li>Outstanding Woman in Engineering (Major Area of Study - Environmental Engineering), Venus International Women Awards - VIWA 2020.</li> <li>Best paper award, International conference on Bioprocess for Sustainable Environment and Energy (ICBSEE-India-2020) for the paper “Microwave Co-pyrolysis of biomass and plastic-Effect of microwave susceptors on the yield and property of biochar.</li> </ol>
Dr. Shantanu Patra	Best paper award from Indian Geotechnical Society, IGS-Z-Tech Biennial Award (December 2020) for “Geosynthetic and Allied Construction Products for the paper “A Mechanistic Pullout Model for GRS Walls Under Kinematic Consideration”
Dr P R Budarapu	Editorial Board member of International Journal of Computational Methods (IF:2.193) journal from 01.03.2021 onwards.
Dr. M. M. Mahapatra	Editorial Board of Transactions of the Indian Institute of Metals Journal (IF: 1.499)
Dr S R Samantaray	Selected for Fellow, IET (Institution of Engineering and Technology), UK -2020
Dr. Madhusmita Dash	Selected as “ <i>Young Social Scientist</i> ” to participate in the “Natural Capital Accounting and Valuation of Ecosystem Services (NCAVES) India Forum” conducted by the Ministry of Statistics and Programme Implementation (MoSPI), Government of India, in collaboration with United Nations Statistics Division (UNSD), European Union, UN Environment Programme (UNEP) and Ministry of Environment Forest and Climate Change (MoEFCC) from 14th-28th January 2021.
Dr. Rajan Jha	Received SERB STAR Fellowship
Dr. Vasudeva Rao Allu	Received <i>Editor of Journal of Mathematical Inequalities</i> honour.

## 6. Student Activities:

The Students' Gymkhana at IIT Bhubaneswar is a central hub for all-round development of students. The major councils under Students' Gymkhana are Social & Cultural, Science & Technology, and Sports & Games, which are active throughout the year. The annual techno-management fest Wissenaire, socio-cultural fest Alma Fiesta, and Entrepreneurship meet E-Summit have set a distinguished mark in the eastern zone and had their best editions yet.

### Achievements of Students in Technical Events:

SI. No.	Name of Event	Conducted by	Our Society/Council	Name of Student(s)	Position
1	Amazon Hackathon	Amazon	Neuromancers	Navaneeth Bysani,Sai Krishna Jupally,P Kartikeya,Shrirang Desmukh	Rank within top 10 teams
2	August Cook-off Division 2	Codechef	Neuromancers	Akshat Anand	Rank within top 200 contestants
3	January Long Challenge 2021	Codechef	Neuromancers	Arpit Kesharwani	Global Rank 10
4	May Contest	Codedrills	Neuromancers	Arpit Kesharwani	3rd Rank
5	Contest	Interview Bit	Neuromancers	Arpit Kesharwani	5th Rank
6	Kickstart	Google	Neuromancers	Sarthak Gupta,Bhargav,Arpit Kesharwani	Global Rank 42, 255 and 41 respectively
7	Hackercup 2021	Facebook	Neuromancers	Sarthak Gupta	Global Rank 50
10	Inter IIT Tech Meet	IIT Guwahati	Technical Council	Akarsh Rana,Ankit Anand,Chebrolu Sravanth,Raushan Kumar,Ganesh Ram Kaushik	Bronze Medal(3rd prize)
11	Graphic Design Competition	Ek Bharat Shreshtha Bharat	Web n Design	SL Krishna	3rd Prize
12	Hackathon	North Cap University	Web n Design	P Kartikeya	3rd Prize
16	Design Challenge conducted by Amatheia	IIT Gandhinagar	RISC	Divesh Shet	4th Position



**Achievements of Students in Socio-Cultural Events:**

Sl. No.	Name of Event	Conducted by	Our Society/Council	Name of Student(s)	Position
1	International Model United Nations	<a href="http://internationalmun.org">internationalmun.org</a>	Panacea	Ayush Kashyap	2
2	Expostuletz, Summer Debate	NIT Agartala	Panacea	Ayush Kashyap	2
3	Dais Interdiction, English Debate	Army Institute of Technology, Pune	Panacea	Ayush Kashyap	3
4	AstroClix '21	Clix and Nakshatra, IIT Bhubaneswar	Clix	Guntupalli Kartheek	2
5	Clixathon	Clix, IIT Bhubaneswar	Clix	Raghunath B	1
6	National level Slogan Writing Competition, Hindi Pakhwada	Rajbhasha Ekek, Abhivyakti, IIT Bhubaneswar	Abhivyakti	Prakhar Srivastava	1
7	Green Auction on the occasion of World Environment Day	Eco Club, NIT Silchar	Quiz Club	Aayush Gahan, Aditya Balakrishnan, Vedanta Mohapatra	1
8	Quiz Competition in the theme "Independence Struggle and 75 years of Independence"	Itihasa, the History Association, DCAC and IQAC, DCAC (Delhi College of Arts and Commerce, DU)	Quiz Club	Vesalapu Gnan Vikas	2
9	Monologue Competition	Gujarat Government	Fourth Wall (Dramatics)	Aniket Shah	1
10	Monologue Competition	NIT Trichy	Fourth Wall (Dramatics)	Saurabh Kumar	1
11	Inter College Painting Competition	Saarang, IIT Madras	Kalakriti	Lakshit Hazarika Rabha	1

**7. Infrastructure Creation:**

Towards the end of financial year 2016-17, MHRD, Govt. of India sanctioned Rs 850 Crore for Phase-II constructions to fully develop the institute in all respects for a student strength of 2500. The institute carried out a very proactive exercise of creating the 2nd phase infrastructure and complete it by Jan 2019. The Institute selected NBCC as the PMC through competitive bidding process and carried out a very careful planning process for speedy initiation and completion of Phase-II buildings. The Master plan has been redone with a lot of improvements including creation of academic and residential spines.

Sl No.	Name of the Work	Area (Sq.m.)	Cost of Buildings (in Crore)	Date of Start	Likely date of Completion as per NBCC	Percentage of Progress
1.1	Boys' Hostel (800 Seater)- 1 No.	24504	103.84	20.04.2017	occupied since Oct'2019 pending defect rectification	99.4%
1.2	Girls' Hostel ( 400 Seater)- 1 No.	15043				
2.1	Boys' Hostel (800 Seater)- 1 No.	24504	541.06	27.11.2017	Director Bungalow , A1, B1, Part of BH-3 (RHR), part of LHC-3 (Pushpagiri) completed and occupied pending defect rectification  Other buildings will be completed by 31.3.2022	78%
2.2	Type – A Faculty Qtrs. (44 Nos)-2 unit	11386				
2.3	Type –B Faculty Qtrs. (88 Nos) -4 unit	21275				
2.4	Type –C Staff Qtrs. (66 Nos)-3 unit	13682				
2.5	Type –D Staff Qtrs. (44 Nos) - 2 unit	6633				
2.6	Students activity centre (including swimming Pool 50 x 25M)	4350				
2.7	Dispensary	1224				
2.8	Auditorium (1500 Capacity)	5278				
2.9	School of Minerals, Metallurgical and Materials, Engineering	6085				
2.10	School of Earth Ocean & Climate Sciences	6001				
2.11	School of Humanities, Social Sciences & Management	1715				
2.12	Central Workshop	2545				
2.13	Central Research and Instrumentation facilities	2725				

5.1	Efficiency Hostel	7555	52.35	14.12.2018	31.03.2022	75%
5.2	Extension of SBS Building	2564				
5.3	Extension of SIF Building	3105				
5.4	Extension of SMS Building	3128				
6.1	External development (like Road, Drain, Play Fields, Play courts, Equipment room, Cycle car parking , land scapping in LHC and School and open air theatre	40 acres	58.66	03.03.2019	31.03.2022	49%
7.1	STP with SCADA system		4.21	29.06.2019	31.03.2022	56%

The scheduled date of completion of the work was December 2019. The overall financial progress of the projects as of now is approx. 63%. Now it is expected to be completed by March - 2022 as per NBCC.

### Green Campus Initiatives:

IIT Bhubaneswar is highly committed towards promoting the culture of eco-friendliness, creating a green belt, has been taking up humongous steps towards making the campus and nearby places green and adopted several green campus initiatives: IIT Bhubaneswar has created and maintains outstanding landscapes and greenery in the campus. Plantation of trees also help create wellness environment important for the campsites to enjoy the working and residential space.

**Plantation Initiative:** — In addition to 40,000 plants planted in the previous five years, last year more than 2,500 plants have already been planted. The exotic and indigenous evergreen and deciduous flowering trees and plants such as Bauhinia, Coconut, Date palm, Foxtail palm etc., were some of the varieties chosen to be planted to create the healthy echo-system for attracting the exotic and migratory birds. Along with the plantation of new plants, the old ones were restored. The massive task related to the teak plantation was completed along the boundary wall of our campus.

**Cycle Friendly Campus Initiative:** IIT Bhubaneswar banned power vehicle use by students and incorporated the “Cycling Culture” for promoting the health benefits of students, faculty, staff and the community and for controlling environmental risk factors. The institute has initiated the Bicycle Infrastructure Development Plan for creating “Cycle Friendly Campus” by providing sustainable and convenient tree-lined cycle path for riding a bicycle between the schools and hostels, and for constructing cycle parking infrastructure in each of the buildings.

**Water-Harvesting Initiative:** IIT Bhubaneswar has initiated building up of rooftop rainwater harvesting and surface rainwater harvesting infrastructure, and setting up a waste management system and wastewater recycling plant, to make the campus zero-discharge.

**Green Buildings:** The buildings are GRIHA (Green Rating for Integrated Habitat Assessment) 4 and 5 compliant. The building construction is done by using the fly ash blocks which are not only environment friendly, but also keep the building cool and clean.

**Eco-friendly Waste Disposal:** IIT Bhubaneswar deployed dustbins with biodegradable and non-biodegradable categories.

## **8. Alumni Activities:**

The Alumni Cell and Alumni Association of IIT Bhubaneswar has continued their activities relentlessly in spite of the current global situation. The Bangalore Chapter of IIT BBS Alumni Association, B has continued to function to its full potential. The success of this chapter was an extremely encouraging phenomenon, especially considering the institute's vision to form and inaugurate more such Chapters at various locations in the near future.

One of the major event of this year was the IIT Industry Conclave organized by the IIT Alumni Centre Bengaluru on 15th August 2021. Our Director Prof. R.V Raja Kumar attended this conclave. This conclave provided an opportunity to interact with speakers from various walks of life including a large number of IIT Directors and alumni. In fact, the Chief Guest of 10th Convocation, Padma Vibhushan N. R. Narayana Murthy was also present in the conclave and his valuable thoughts on a road map pertaining to the role of IITs in improving the economy of the country.

In view of the pandemic scenario, a total of 33 webinars have been conducted on topics, which range from “What IITs do” to “Future of education”. An AI excellence center of excellence with the objective of conceptualizing and supporting projects on subjects of national/ social importance has been established. Its major goal is to support curation and creation of open resources for faculty and industry across the globe and to popularize adoption of AI technologies in industry.

### **Participation in PAN IIT Global Virtual Technology Summit PI-WOT 2021**

This event, which was organized on the 17th and 18th of September, 2021 and was attended by our director Prof R.V. Raja Kumar and Dean AA& IR, Prof Swarup K Mahapatra focused on key issues such as the need for a change in the Startup Ecosystem in India. Various points were put forth regarding this topic, such as the need to expand on the basic education structure so as to include the idea of Startups along with the need for building a scalable mentoring model.

### **Other Activities:**

Apart from these significant events, the IIT Bhubaneswar Alumni Association has also conducted various other activities. Multiple Webinars and Interactive Sessions were organized over the last academic year, providing our students with an opportunity to seek guidance from successful alumni and entrepreneurs.

The 4th issue of the Biannual Alumni Newsletter, Spaghetti, was published in the month of March. This issue covered many significant events, which took place in the institute over the last year and also included success stories of our Alumni along with dealing with lockdown.

The Alumni Association lauded the efforts put forth by Director, Prof R. V Raja Kumar in guiding his team for implementing path finding innovative strategies for not only conducting online classes and examination but also on giving hands-on-laboratory training to the graduating batch of 20-21.

## 9. Entrepreneurship & Startup Activity:

Entrepreneurship Cell, IIT Bhubaneswar is committed to its goal of nurturing the entrepreneurship culture among its students. E-Cell raised the bar by holding another successful E-Summit, this time using online platform. E-Cell also showed its commitment towards sustaining the environment of innovation through its technology incubation center activities. The details are as below:

### E-Summit 21

The seventh edition of E-Summit'21 held during March 26-29 with the theme "Reign of Resilience". Shri. Kris Gopalakrishnan, Chairman Axilor Ventures and Co-founder Infosys was the Chief Guest E-Summit'21 that witnessed a number of conclaves and event well attended by the participants in virtual mode. In Crypto-currency conclave Mr. Siddharth Sogani - CEO, CREBACO Global Inc, Shivam Thakral - CEO & Co-Founder BuyUcoin Consultants, Anil Lulla - COO at Delphi Digital, Raj Chowdhury - Managing Director, HashCash, provided insights on the current trend of Crypto-currency and Block chain startups. Twenty teams took part in Innovation expo and showcased their projects useful for social welfare. In R&D Conclave the panelists Prof. Vivek Polshettiwar, TIFR, Dr Aruna Shankarkumar, NIIH, Umashankar Singh, IIT Gandhinagar put their views on ethical research and discussed the technical side of R&D like DNA cutting, immunology, and nanotechnology. The Investors Conclave has an engaging session on current investments scenario with panelists Mr. Vinayak Nath, Serial Entrepreneur & TEDx Speaker, Mr Sanjay Jesrani, Founder & CEO, Go North Ventures, and Mr Shashank Randev, Founder VC. Investup a debutant event of E-Summit'21 had many resilience series interactions with famed personalities like Ms Anisha Motwani, entrepreneur and noted author, Mr Akash Singh, Co-Founder and CTO of Observe.AI. Mr Acharya Prashanth, an acclaimed Vedanta teacher authoring over 60 books. The Summit concluded with a thought provoking session with Dr. Kiran Bedi, the first female IPS officer of India and former Lt. Governor of Puducherry who was the Chief Guest of the valedictory ceremony.

### TIC activities

The four projects currently running under technology incubation centre are near complete. Three IOT based project aim at development of home security solutions (PI: Dr. Bharathram Ramkumar), electrical power grid stability (PI: Dr. Srinivas B. Karanki) and health monitoring devices (PI: Dr.M.S.Manikandan). these are in their final development stage with most of the objectives achieved. Another project aims at developing a bio-digester system for Biogas production using bio-waste from IIT hostels' kitchens (PI: Dr. Prasenjit Rath). The construction of the Bio digester has been done in Mahanadi Hall of Residence. The project is also nearing its completion. Three more projects from faculty and students have been approved for providing the financial assistance under TIC and will take off shortly.

## 10. Continuing Education Programme (CEP):

Continuing Education Programme is an illustrative and widely accepted segment of IIT Bhubaneswar which aims to organize workshops, symposiums, short term courses, and training programs in the field of Science, Technology, Management, & Finance for the professionals of the Industries, Government & research scholars to enhance their expertise skills and academic career. Recently, CEP has started customized training programme/ certificate courses for the in-service professionals of the Industry to meet their challenging areas of works..

### Symposiums, Workshops, and Faculty Development Programme at CEP:

During 2020 -21, six (06) nos. of National and International symposiums, workshops, and faculty development programme have been organized under the aegis of Continuing Education, IIT Bhubaneswar. Details are tabulated below:

Sl. No.	Title of the Events	Symposium/ FDP/ Workshop	Types of the Events (National/ International)	Duration of the Event	Mode of conduct	No. of Participants
1	Corrosion and Surface Engineering for Aerospace and Other Applications	Symposium	National	19.03.2021 to 20.03.2021	Online	102
2	Analysis and Design of Minor Bridges and Cultivates	Workshop	National	08.03.2021 to 10.03.2021	Online	57
3	New Technology Application in Rural Roads	Workshop	National	25.02.2021 to 27.02.2021	Online	29
4	BOF Process Control	Workshop	National	09.06.2021 to 10.06.2021	Online	15
5	Power Electronic and Renewable Energy Systems Control	Symposium	International	04.12.2020 to 05.12.2020	Online	65
6	Effective Team Work	FDP	National	26.07.2021 to 30.07.2021	Online	200

### Programme & Schemes at CEP:

- Under the Quality Improvement Programme (QIP), nine (09) faculty members from the AICTE approved colleges have been enrolled into Ph. D. programme in the different disciplines at IIT Bhubaneswar while 5 more are selected for Pre-Ph.D. programme in the year 2021-22. Besides, 15 nos. of online Short Term Courses have been conducted. Notable among them are tabulated below:

Sl. No.	Title of the Short Term Course	Name of the Coordinator (s)	Associated with the School	Duration of the STC	Mode of Conduct	No. of Participants
1	Digital Communication and Communication Networks	Dr. Pravas Ranjan Sahu & Dr. M. S. Manikandan	SES	14-25 June, 2021	Online	39
2	Learning CFD/HT through Industry Relevant Problems	Prof. S.K. Mahapatra & Dr. Prasenjit Rath	SMS	7-18 June, 2021	Online	43
3	Design of Landfills and Waste Containment Systems	Dr. B. Hanumantha Rao Dr. Remya Neelancherry	SIF	5-9 July, 2021	Online	123
4	Advances in Energy and Functional Materials	Dr. Soobhankar Pati Dr. Srikant Gollapudi Dr. Amritendu Roy Dr. Sivaiah Bathula	SMM&ME	14-26 June, 2021	Online	31
5	Stock Market, Portfolio Management & Trading	Dr. Naresh Chandra Sahu	HSS&M	24- 28 May, 2021	Online	43

● Scheme for Promotion of Academic and Research Collaboration (SPARC): Scheme for Promotion of Academic and Research Collaboration (SPARC) is an initiative of the Ministry of Education, Government of India which aims to improve the research ecosystems of India's higher education institutions by facilitating academic and research collaborations between top-ranked Indian institutions and globally ranked Foreign Institutions. For IIT Bhubaneswar, Eleven (11) major research projects have already been sanctioned which is the largest number of approvals amongst the 2nd and 3rd generation IIT's. During the year 2020-21, under SPARC Project (P468) two Indo-USA online Short-term Courses on “VLSI Architectures for Energy-Efficient Embedded Healthcare Systems” & “Signal Processing and Machine Learning Techniques for Data-Driven IoT and Smartphone Health Monitoring” have been conducted through online mode. The renowned International speakers Prof. Keshab K. Parhi and Prof. Alena Talkachova from the University of Minnesota,

USA have delivered lectures on different topics of the courses. Another course titled “Numerical Methods in Radiative” has also been conducted under SPARC project (P420). Prof. Sunil Kumar from New York University USA, an internationally well-known expert in radiation heat transfer, has delivered lectures on different topics of the course..

● **Global Initiative of Academic Networks (GIAN):** Global Initiative of Academic Networks (GIAN) is one of the Flagship programs of the Ministry of Education, Government of India. Under the GIAN program, IIT Bhubaneswar has conducted 32 Nos. of short-term courses with the support of eminent professors from across the globe. Furthermore, 31 nos. of short term course proposals have been submitted by IIT Bhubaneswar for Phase-III of GIAN.

### 11. Outreach Programme:

Going by the spirit of Government of India in instituting the Unnat Bharat Abhiyan in making the benefit of the presence of an IIT make a difference in the hinterland, IIT Bhubaneswar started a very spirited Outreach Programme. The institute takes up several activities in the following means during the last year under its Outreach programme:

**Unnat Bharat Abhiyan (UBA) activities:** The following activities were undertaken by the UBA team during the last year.

- Online Classes on Science, English and Mathematics subjects: The UBA team has been conducting online classes on Science, English, and Mathematics for the students of Class V - VIII of the adopted villages since November 2020 during the COVID pandemic period. Students' learning is enriched by regular assessments and personal guidance during this pandemic period.
- On the 75th Independence day celebration, the UBA team of IIT Bhubaneswar conducted a virtual program for the enrolled students from different schools of Odisha to enlighten students about the rich history of India and inspire them to actively participate in the welfare of our society.
- Several activities such as drawing, debate, essay writing and just-a-minute competitions were also conducted based on relevant social themes with an innovative approach. The UBA team also organized a very informative and innovative quiz event based on historic achievements, eminent personalities of our nation, and India's achievements in Tokyo Olympics 2020 to celebrate “Azadi ka Amrit Mahotsav”.

IIT Bhubaneswar conducted a Mini-Marathon and a Walkathon as part of the Fit India Freedom Run program on 25th September, 2021 (Saturday). The event was inaugurated and flagged off by Prof. R.V. Raja Kumar, Director, IIT Bhubaneswar.

Despite the pandemic, the EAA classes saw the full and enthusiastic participation of the first year undergraduate and dual degree students who joined in the year 2020 as part of their course curriculum. It also include physical fitness training session, Yoga session. The EAA-NSS students carried out cleanliness of their surroundings while maintaining social distancing as part of the Swachh Bharat Abhiyan program.



Shri Sanjeev Chandra, Addl. Director, Sansad; Smt. Susmita Bagchi, Chairperson Mo School, Govt. of Odisha; Maj. Gen. K. V. Jauhar, VSM, ADG, ATB; Prof. Devdas Menon, Chair Professor in the Department of Civil Engineering at IIT Madras; Prof. Bijayalaxmi Nanda, Acting principal of college Miranda House, University of Delhi; Prof. Anil K. Gupta, Founder of the Honey Bee Network, National Innovation Foundation; Prof. Jatindra Kumar Nayak, Visiting Fellow, National Institute of Science Education and Research (NISER), Bhubaneswar; Prof. Ashok Jhunjhunwala, Padma Shri, Head- IITM Incubation Cell; Dr. Srikumar Banerjee, Padma Shri, Retired as the Chairman Atomic Energy Commission of India (AECI) and the Secretary of Department of Atomic Energy (DAE); Shri Ashok Madhukar, Chairman, Emeritus with Madhukar Livelihood Foundation; Commander V. K. Jaitly, IIT KGP Alumnus, INS (Retired) and Chairman, C-cube Consultants, C\_cube conducts Programs in Business Excellence; Dr. Vinay Sahasrabudhe, Hon'ble Chairman, Parliamentary Standing Committee on MoE, Govt. of India; Prof. Anil Sahasrabudhe, Hon'ble Chairman, AICTE and Director, ATAL Academy; Prof. Ramesh Chandra Sinha, Chairman, Indian Council of Philosophical Research (ICPR), New Delhi; Shri Kris Gopalakrishnan, Chairman Axilor Ventures and Co-founder Infosys; Dr. Kiran Bedi, Former Lieutenant Governor of Puducherry and First Woman IPS Officer; Dr. V.K Aatre, Former Director-General, Secretary, Department of Defence R&D, Defence Research and Development Organization (DRDO); Dr. Omkar Rai, Director General, STPI; Smt. Anuradha Acharya, Founder and CEO of Ocimum Bio Solutions and Mapmygenome; Swami Achalananda Giri, Secretary and Administrator for Prajnana Mission; Shri Jaswinder S. Ahuja, Corporate Vice President, and Managing Director of Cadence Design Systems India; Shri Ranjan Kumar Mohapatra, Chairman, Skill Development Institute (SDI) and Director (HR), Indian Oil Corporation; Mr. Arul Dev, An Author, Radiant Universal Leader Coach and Integral Educator and a guest faculty at IIT Madras; Dr. G. Satheesh Reddy, Chairman, Deference Research Development Organization (DRDO), Scientific Advisor to Defence Minister, Secretary, Department of Defence Research and Development and Director General, Aeronautical Development Agency (ADA); Prof. Ashok Kumar Mahapatra, Former Director, AIIMS Bhubaneswar and Current Vice Chancellor, SOA University, Bhubaneswar.

#### **14. Women's Welfare Committee (WWC):**

The Women Welfare Committee (WWC), IIT Bhubaneswar is an active body committed to create awareness and promote woman welfare of not only its staff, faculty or female students, but it also extends its awareness in the nearby villages as well. .

On the eve of International Women's Day, on 8th March, 2021 IIT Bhubaneswar Women Welfare Committee organized a thought provoking session at its campus. The theme for the International Day was 'Women in leadership: Achieving an equal future in a COVID-19 world', celebrating the tremendous efforts by women and girls around the world in shaping a more equal future and recovery from the COVID-19 pandemic. Mrs Rajita Kulkarni, President of World Forum for Ethics in Business was the Chief Guest, Adv. Snehanjali Mohanty, Senior Member State Commission for Women Odisha was the Guest of Honour.

WWC with its Students Team regularly host different events and activities such as Quiz competition; organised on September 04, 2021 named as 'Know the Women Change makers' (the quiz was a tribute to women who have achieved milestones in their respective fields and have inspired the world in their own unique ways) and Logo completion for the students in order to create and promote awareness among them. The committee is on its way to create a 24-hour security helpline for its women employees and students and to start a course on women studies. WWC will continue its tradition to invite inspirational women to encourage young men and women to promote equality.

### **15. Computer and IT services Cell (CITSC):**

The following are some of the activities carried by CITSC in the last academic year with uninterrupted service and connectivity all through the year without giving a feeling of remote participation by the participants due to the pandemic.

- Provided support for conducting online classes so that academic activities are not interrupted due to covid pandemic.
- Implemented a system to conduct conventional exams online. The system was used to successfully graduate all the students with full honors.
- Assisted the institute in conducting numerous online meetings including senate, BoG etc for the smooth functioning of the institute during the pandemic.
- The new datacenter is upgraded with new servers.
- Provided LAN and WiFi connectivity to newly inaugurated Rushikulya Hall of Residence.
- Made arrangements at newly inaugurated Pushpagiri Lecture Hall Complex to conduct Hybrid Classes
- New ERP modules like leave management system, research scholar fellowship management, R&D project staff management.
- Adapted a system to have hybrid convocation and was successfully used in the last convocation. The same is used in this convocation

### **15. Graduates of the Year:**

In this convocation 256 B.Tech., 36 Dual Degree, 153 M.Tech., 79 M.Sc., and 35 Ph.D. students will be receiving their degrees, totaling to 559.

**Mr. DINESH MOHANTY**, Computer Science and Engineering receives the coveted President of India Gold Medal for topping all B. Tech. branches.

**Mr. SHIVAM HANDA**, School of Mechanical Sciences receives the coveted Director's Gold Medal for topping all Dual Degree Programmes.

**Mr. SASWAT KUMAR PANDA**, School of Mechanical Sciences receives the coveted Director's Gold Medal for topping all M. Tech. specializations.

**Mr. HITESH GUPTA**, Atmosphere and Ocean Sciences (School of Earth, Ocean and Climate Sciences) receives the coveted Director's Gold Medal for topping all M. Sc. Branches.

The following students receive the Institute Silver medals for topping in their respective branches/specializations as shown below:

**Institute Silver Medal for Topping in B.Tech. Programmes:**

Dinesh Mohanty	Computer Science and Engineering
SudhanshuChoudhary	Civil Engineering
Kuldeep Gupta	Metallurgical and Materials Engineering
Ranjith K	Electrical Engineering
Jishnu Shankar Baruah	Mechanical Engineering

**Institute Silver Medal for topping in M. Tech specializations:**

Saswat Kumar Panda	School of Mechanical Sciences (Manufacturing Engineering)
RohitDilip Agarwal	School of Electrical Sciences (Computer Science and Engineering)
SusmitSubhransuSatpathy	School of Earth, Ocean and Climate Sciences (Climate Science and Technology)
Kona Sai Vikas	School of Infrastructure (Water Resources Engineering)
Soumyashree Bisoyi	School of Electrical Sciences (Power System Engineering)
Shivangi Srivastava	School of Electrical Sciences (Electronics and Communication Engineering)
Rajeeb Kumar Malik	School of Minerals, Metallurgical and Materials Engineering (Metallurgical and Materials Engineering)

**Institute Silver Medal for topping in M.Sc. disciplines:**

Hitesh Gupta	Atmosphere and Ocean Sciences
VikasmitaSamanta	Physics
Aditya Kumar	Chemistry
Rumki Ghosh	Mathematics
Bibhabasu Pradhan	Geology

The other endowment awards won by the students are shown below:

Dr. K. Kasturirangan Award (Best Male Graduate)	Dinesh Mohanty
Prof. P. Rama Rao Award (Best Lady Graduate)	AneriManoj Gandhi
Dinesh Memorial Award (Best B. Tech Thesis – Mechanical Sciences)	Akarsh Balachandran

## 17. Other Activities:

Besides the several programmes mentioned earlier in the report, the Institute observed and celebrated several events ranging from Swachh Bharat Programme, COVID-19 Vaccination Camp in Bhubaneswar and IIT Bhubaneswar Campus, Rashtriya Ekta Diwas, Vigilance Awareness Week, Hindi Pakhwada National Education Day, 72nd Republic Day, 13th Foundation Day, Matribhasha Diwas, World Philosophy Day International Women's Day, E-Summit, Almafesta, AR-VR Conclave, Hackathon and Start-up Colloquium, Plantation drive on the eve of World Environment Day, 74th Independence Day, 7th International Yoga Day, Hindi Pakhwada, Fit India Cyclothon, Fit India Mini-Marathon and Walkathon. The events saw active participation of students, faculty and staff members by adhering to all the social distancing and safety protocols in view of COVID-19.

## Acknowledgements:

This Institute and its entire activities could not have been achieved without the full participation and support of all stakeholders – our faculty, students and staff; agencies and industries sponsoring R&D and consultancy projects; professionals from other organizations and our alumni. The Institute is grateful to the Ministry of Education, Govt. of India for its continued and sustained encouragement and support.

Before I conclude, I congratulate all the graduating students, awardees and medal winners and wish all happiness, professional and successes towards achieving leadership in their chosen areas and fulfillment in their lives.

*Jai Hind!*

**Professor R V Raja Kumar**

October 20<sup>th</sup>, 2021