

निदेशक के कलम से  
Director's Note



I am glad to present the latest edition of INK to you. New aspirations are the driving force of a budding institute like ours. The past six months have seen significant milestones in our growth journey. We have been incrementally increasing our student strength as well as faculty and staff positions, in keeping with our vision for planned, phased development of the institute. Our next phase of construction has been sanctioned by the Ministry of Education, and we anticipate commencing construction in the near future.

Numerous international and national collaborations have paved the way for making our institute a global platform for learning. In the span of six months, five MoUs have been inked nationally and internationally to cover collaborative R&D across disciplines. Our institute faculty continue to receive patents from the Government of India for their pathbreaking innovations in socially impactful domains. The scholarly culture of the institute is getting strengthened with the organisation of a plethora of lectures, workshops, and conferences, attracting eminent experts to the institute and creating avenues for exposure for our students and collaborative research for our faculty.

We remain committed to contributing towards the holistic development of Chhattisgarh. I am pleased to share that we have developed a “Textbook Distribution Online Tracking System” in collaboration with the Textbook Corporation of Govt. of Chhattisgarh to streamline and digitize textbook distribution across the state. This initiative was launched in response to previous incidents of textbook theft, ensuring transparency and traceability through ISBN codes and unique barcodes. Over 14.2 million books have been scanned, and approximately 8.619 million books distributed to students so far. Additionally, IBITF has proudly supported the District Administration of Raipur in developing the “One App One Citizen” platform to offer citizens a unified interface for accessing schemes, services, and civic information. Slowly but steadily, we are fulfilling our shared, collective vision of Viksit Bharat @2047.

**Prof Rajiv Prakash**  
Director, IIT Bhilai

# अनुसंधान और विकास

## Research and Development

### Celebrating International Women's Day 2025 in the PCCP journal

Research from Dr Md Mehboob Alam's group titled "Why does the orientation of azulene affect the two-photon activity of a porphyrinoid-azulene system?", where PhD student Ms Swati Singh Rajput is the lead author, has been selected as a part of the themed collection: Celebrating International Women's Day 2025 in the Physical Chemistry Chemical Physics (PCCP) journal.

### Rod-shaped active matter systems developed at IIT Bhilai

A team of researchers led by Dr Dhruv Pratap Singh from the Active Micro and Nano Systems (AMN) Lab has developed a novel class of rod-shaped active matter systems capable of autonomous motion in fluid media when activated by external light sources. These photo-activated microswimmers exhibit diverse and dynamic swimming behaviors when navigating through environments filled with passive particles. Their research has been published in *Small: Wiley-VCH*.

### Smart materials for unbreakable and soundproofing devices

Dr Sanjib Banerjee and his team, Mr Swarup Maity and Mr Nishikanta Singh, have developed 'Smart materials for unbreakable and soundproofing devices'. Smart polymeric materials are revolutionizing various industries by offering exceptional flexibility, impact resistance, and energy dissipation. These advanced materials are designed with specialized polymers and chemical interactions, allowing them to absorb and dissipate energy efficiently under dynamic stress. The unique properties of these materials, including their ability to autonomously repair and their outstanding vibration-damping performance, make them ideal for applications in critical sectors such as defense, automotive, aerospace, construction, and electronics.

### Smart polymers for energy efficient buildings and information security

A team of researchers from the Department of Chemistry at IIT Bhilai, Mr Bhanendra Sahu, Mr Sudipta Paul, Mr Amul Jain, and Dr Sanjib Banerjee, has unveiled a groundbreaking smart material that could redefine how we manage energy in buildings and secure sensitive information. This newly developed polymer responds to its environment, making it ideal for smart windows that automatically adjust to changing temperatures, helping reduce reliance on air conditioning and lighting.

## IIT Bhilai faculty takes charge as editor of major international journal

Dr Anubhav Pradhan, Assistant Professor, Department of Liberal Arts has taken charge as Editor of South Asia Research (SAR), one of the preeminent international journals in the domain of South Asian studies. Prof D. Parthasarthy at the Dept. of HSS, IIT Bombay is Dr Pradhan's co-editor at SAR. Ms Deepanwita Dey and Ms Rudrani D. Chaudhuri, doctoral scholars at the Department of Liberal Arts, have also been onboarded as editorial assistants at SAR. SAR began its journey in 1980 at the School of Oriental and African Studies, University of London. For the first time in its history, the journal is now headed by a team based entirely in South Asia. With this transition, the editorial office of SAR has now shifted from the UK to IIT Bhilai. This is a major step towards the decolonisation of knowledge production and dissemination.

## Patent Granted to IIT Bhilai faculty

IIT Bhilai received a patent titled “A Multi Spot Based Electric Vehicle Charging Station” vide patent #564665 to Dr Shailendra Kumar, Assistant Professor, Department of Electrical Engineering, IIT Bhilai and his team (Dr Dulichand Jaraniya and Dr Prashant Agnihotri) by the patent granting authority of Govt. of India on 31 March 2025.

## समझौता ज्ञापन और सहयोग MoU and Collaboration

### MoU with Indira Gandhi Krishi Vishwavidyalaya



Indira Gandhi Krishi Vishwavidyalaya (IGKV) Raipur and IIT Bhilai signed a five-year Memorandum of Understanding (MoU) on 26 April 2025 aimed at promoting collaboration in education, research, and technology development. Through this partnership, both institutions will work together to train students, support high-quality postgraduate research, collaborate on research work, use each other's facilities, and share scientific and technical information. The MoU is expected to boost research, innovation, and technology development in Chhattisgarh.

## MoU with Institut Mines Telecom (IMT) Nord Europe



IIT Bhilai has entered into a MoU with Institut Mines Telecom (IMT) Nord Europe on 6 June 2025, marking a significant milestone in fostering international academic and research partnerships between India and France. The agreement is formalized with the primary objective of advancing joint action in matters of reciprocal interest between IMT Nord Europe and IIT Bhilai. Under this agreement, undergraduate and postgraduate students from IIT Bhilai will have the opportunity to study in France and earn joint degrees, thereby gaining invaluable international exposure.

## MoU with Directorate of Archaeology, Archives and Museums, Government of Chhattisgarh and the Chhattisgarh Tourism Board

In pursuit of its aim to incubate socially relevant research for the holistic development of Chhattisgarh, IIT Bhilai has inked two MoUs with the Government of Chhattisgarh in a ceremony organised on 16 May 2025. The MoUs have been signed with the Directorate of Archaeology, Archives and Museums, Government of Chhattisgarh and the Chhattisgarh Tourism Board respectively. The ceremony was organised in the auditorium of the Mahant Ghasidas Memorial Museum at Raipur, on the first day of a three-day national seminar titled “The Future of Museums in Rapidly Changing Communities” organised by the Government of Chhattisgarh.



## MoU with University of Siegen



In a significant move towards strengthening Indo-German academic and research ties, IIT Bhilai has signed a MoU with University of Siegen. The MoU aims to promote joint research, academic exchange, and collaborative projects between the two institutions. A major highlight of this partnership is the establishment of a Joint Centre on “Sensors”, which will be set up at IIT Bhilai. The Centre will serve as a hub for cutting-edge research and innovation in sensor technologies, co-managed by experts from both institutions.

## MoU with Seoul National University

IIT Bhilai has inked an MoU with the Asia Center of Seoul National University, Republic of Korea. This MoU will help in developing joint activities such as exchange of faculty members, exchange of scientific information, joint research projects and organization of conferences. Both institutions will explore the possibilities of various research and development opportunities in both countries.

## व्याख्यान और सेमीनार Lectures and Seminars

### Workshop on Harmonic Mappings, Partial Differential Equations, and Applications (HMPDEA 2025)



IIT Bhilai hosted a three-day workshop from 7 to 9 January 2025 on Harmonic Mappings, Partial Differential Equations, and Applications (HMPDEA 2025) sponsored by SERB and NBHM, Govt. of India. The workshop was organized as a pre conference workshop of International Conference on Mathematics and Computing (ICMC 2025). The event was inaugurated in the presence of chief patron of the workshop Prof Rajiv Prakash, Prof S. Ponnusamy, ICMC Program Chair, Dr Pawan Kumar Mishra, Convener of the workshop, and Prof Swadesh K. Sahoo, Co-convener of the workshop. The event brought together young researchers working in the area of Mathematics closely related to the theme of the workshop. The topics were covered by a series of lectures given by renowned speakers of their respective research areas.

## 11th International Conference on Mathematics and Computing (ICMC-2025)



The 11th International Conference on Mathematics and Computing (ICMC-2025) concluded successfully at IIT Bhilai, marking a significant milestone in the field of mathematical sciences and computing technologies. Held from January 9 to January 11 2025, the conference brought together leading researchers, academicians, industry professionals, and students from across the globe to explore cutting-edge developments in mathematics, computational techniques, and their applications in real-world challenges. The conference was sponsored by several agencies, such as IBITF, ANRF, CGCOST, CSIR and DRDO.

## Ira Jha Annual Memorial Lecture



The Centre for Culture, Language, and Traditions (CCLT) at IIT Bhilai has instituted a new lecture series titled the Ira Jha Annual Memorial Lecture. This lecture series is named in honour of Ms Ira Jha (1957–2024), a distinguished national-level Hindi journalist of Chhattisgarh. Throughout her illustrious career, Ms Jha worked to foreground the culture of janjatiya communities of Bastar and was a symbol of women's empowerment as well as pride in the culture of Chhattisgarh. Through the Ira Jha Annual Memorial Lecture series, CCLT aims to invite artists and practitioners from Chhattisgarh to engage with the IIT Bhilai communities on the culture and heritage of the state. Shri Anup Ranjan Pandey (Padma Shri), Founder of Bastar Band, delivered the inaugural lecture under this lecture series. Titled “Musical Traditions of Bastar”, the lecture was held on Thursday, 23 January 2025 at the Nalanda Lecture Complex in IIT Bhilai under the aegis of Janjatiya Gaurav Varsha.

## Bootcamp on FinTech Security at IIT Bhilai



The Department of Computer Science and Engineering organized a five-day bootcamp on FinTech security from 4 to 8 February 2025. Instructors from IIT Hyderabad, NIT Raipur, C-DAC Hyderabad, not to mention IIT Bhilai, imparted training to about 30 shortlisted students and professionals on various aspects of FinTech applications and security. A mini-hackathon was conducted on the last two days, where the participants, divided into groups, designed solutions for specific business

problems, such as land records management system, supply-chain software platform, among others. The jury was chaired by Dr Saurabh Gupta, Jt. Secretary, MHA, NATGRID.

## First International Conference on High Energy Physics

The Department of Physics at IIT Bhilai hosted the first International Conference on Frontiers of High Energy Physics (ICFHEP 2025) from 13 to 15 February 2025. This marked the inaugural international conference organized by IIT Bhilai in the field of High Energy Physics (HEP), which aimed to bring together leading scientists, researchers, and students from around the world to discuss the latest developments in this cutting-edge field. The conference was convened by Dr Sudhanwa Patra, Associate Professor of Physics at IIT Bhilai, alongside the organizing team consisting of Dr Sabyasachi Ghosh and Dr Mahavir Sharma (Associate Head of the Department of Physics). The event began with an inaugural ceremony on February 13, 2025, graced by Prof Rajiv Prakash, Prof Sheo Kumar Pandey (Former VC, PRSU), and Prof Urjit Yajnik (IIT Bombay).



## Stakeholders' Workshop



The Centre for Culture, Language, and Traditions (CCLT) at IIT Bhilai organised a stakeholders' workshop on grassroots issues on 27 February 2025. The workshop was held in partnership with the Foundation for Ecological Security, one of CCLT's knowledge partners. The aim of this workshop was to bring together community leaders, thinkers, and

scholars working on grassroots issues in Chhattisgarh, so that the affinities and solidarities between ongoing work may be identified and a robust roadmap collectively created on leveraging the strengths of different organisations towards commonly identified and shared goals. Participants of the workshop included practitioners and experts from a cross-section of sectors in the domains of arts, culture, heritage, traditions, and indigenous knowledge.

## Bapi na Uvat: A two-day youth leadership workshop

IIT Bhilai hosted “Empowering Change - Bapi na Uvat: A 2-Day Youth Leadership Workshop for Community Transformation” from 3 to 4 March 2025. Organized in collaboration with IIT Bhilai Innovation and Technology Foundation (IBITF), UNICEF, and the District Administration of Dantewada, the workshop aimed to equip young volunteers with the knowledge, skills, and motivation needed for community development, mental wellness, and effective engagement. The workshop provided a platform for insightful discussions on digital financial literacy, mental wellness, safe internet practices, community dynamics, and healthcare awareness.



## Certificate course on planning and urban writing

The Centre for Culture, Language, and Traditions (CCLT) at IIT Bhilai organised a five-day, residential certificate course titled “Planning and the Everyday in Urban South Asia” from 3 to 7 March 2025. This certificate course aimed to equip participants to deploy literary urban studies as a methodological tool to understand the institutionalisation of planning apparatuses in modern South Asia. It allowed participants to read literary texts as mediators of urban lived experience, facilitating a grounded and locational perspective to unpack the synergies between state apparatuses, lived experience, and various registers of literary articulation. Prof Cecile Sandten (TU Chemnitz), Dr Stuti Khanna (IIT Delhi), and Shri S.S. Bajaj, IFS (Former Chairman, NRANVP) were the external resource persons for the course. The course also involved a day-long study tour of Nava Raipur Atal Nagar, conducted in collaboration with the Nava Raipur Atal Nagar Vikas Pradhikaran.



## Three-day teachers' training programme



Under the aegis of Rashtriya Avishkar Abhiyan, Ministry of Education, Govt. of India and Samagra Siksha, Chhattisgarh, a three day teachers' training programme was organized at IIT Bhilai from 27 February 2025 to 1 March 2025 under the coordination of Dr Md Mehboob Alam and Dr Nagesh Devidas Patil. In his inaugural address, Prof Prakash spoke on the importance of nurturing scientific temper in children from a young age and the necessity to complement it with ethical values in shaping future citizens of the country. The program was designed to train teachers from primary and secondary schools in pedagogy, and activity based learning under the expertise of faculty from higher education institutes.

## Lecture titled “Cast(e)ing Epidemics in Cultural Representations in India”



The Department of Liberal Arts at the Indian Institute of Technology organised a lecture titled “Cast(e)ing Epidemics in Cultural Representations in India” on 17 March 2025. It was delivered by Dr Antara Chatterjee, Associate Professor of English, Indian Institute of Science Education and Research (IISER) Bhopal. Dr Chatterjee delved into how caste emerges as a crucial subtext in the literary and cultural

constructions of epidemic disease. Through the lens of cultural representations ranging from the nineteenth to the current century, featuring epidemics from plague and cholera to malaria and COVID-19, the lecture reflected how caste has configured meanings and trajectories of infectious disease in India, and in turn, been perceived and negotiated within epidemic outbreaks and their representations.

## Capacity Building Program on Design and Entrepreneurship (CBDE)



IIT Bhilai hosted a two-day Pedagogy Workshop of the Capacity Building, Design and Entrepreneurship (CBDE) programme, under the Malaviya Mission of the Ministry of Education, Government of India. The workshop, held on 12 and 13 March 2025, aimed to enhance teaching methodologies and foster entrepreneurial design thinking among faculties and industrial mentors. IIT Bhilai was selected to organize this workshop in the central India region. Dr Sudhir Varadarajan, Program Director of CBDE program and Associate Professor at IIITDM Kancheepuram, led key sessions, along with coordinators of IIT Bhilai.

## National Conference titled “Well-being and Mental Health: Technological Advancements, Challenges and the Future”

The Department of Liberal Arts organized a national conference titled “Well-being and Mental Health: Technological Advancements, Challenges and the Future” on 21 and 22 March 2025. The conference was aimed at understanding the role of emerging technological innovations in enhancing wellbeing and maintaining and treating mental health such as artificial intelligence. It was funded by the IIT Bhilai Innovation and Technology Foundation. Dr Anindita Ghosh and Dr Rajkumar Eslavath, Assistant Professors of Psychology, were convenors of the conference.

## इवेन्ट Events

### 76th Republic Day

IIT Bhilai celebrated the 76th Republic Day with pride and enthusiasm. Prof Rajiv Prakash unfurled the national flag on the institute premises, which was followed by the national anthem. A synchronized parade by the security personnel and students marched past in the academic zone. Prof Prakash addressed the audience on the occasion on the importance of Republic Day and the contributions of our freedom fighters and soldiers to building this nation. He also spoke about the research undertaken by the faculty that continues to receive recognition and accolades. This was followed by cultural programmes performed by students as part of the celebrations. The programme concluded with a vote of thanks by Wing Commander Dr Jayesh Chandra S. Pai (Retd.), Registrar, IIT Bhilai.



### IIT Bhilai Innovation and Technology Foundation Celebrates its 5th Foundation Day

IIT Bhilai Innovation and Technology Foundation (IBITF) celebrated its fifth Foundation Day on 21 February 2025, marking five years of fostering innovation and entrepreneurship. Mr. Pardeshi Siddharth Komal, Secretary, School Education, Government of Chhattisgarh, graced the occasion as the Chief Guest and highlighted the role of technological advancements in shaping the future of education and skill development.



### World Environment Day 2025

In celebration of World Environment Day on June 5, 2025, the Horticulture Committee of IIT Bhilai organised a Tree Plantation Drive near Shabri Chowk aimed at making a positive impact on our environment and promoting a greener future. A total of fifty native trees were planted and these small steps contribute to a substantial change. This year's theme was 'Ending Plastic Pollution Globally'.

## National Science Day 2025



National Science Day 2025 was a successful event, bringing together faculty, researchers, and students for a day of insightful discussions and knowledge sharing. The programme was convened by Dr Ramasamy Mayilmurugan and was well-coordinated by students. It commenced with an inaugural address by Prof Rajiv Prakash, who emphasized the need for interdisciplinary collaborations of science and engineering. A keynote talk by Dr Archana Sharma from BARC, Mumbai, on the Non-Power Application of Radiation Technology was organised. Throughout the day, nine science talks were delivered by faculty members from various departments, covering topics such as synthetic micro and nanomotors, abstract research vs. experimental research, Lewis acid-base adducts in organic reactions, nature-inspired scientific research, bioinformatics predictors for Alzheimer's disease, and antenna technology for next-generation wireless systems.

## SPICMACAY Virasat 2025 at IIT Bhilai

IIT Bhilai organised a three-day long SPICMACAY Virasat-2025, a journey to Indian classical music, dance, and art, from 28 February to 2 March 2025. The event commenced with an orientation session for students and faculty members conducted by Prof Kiran Seth, Padmashree awardee and founder of SPICMACAY (Society for Promotion of Indian Classical Music and Culture Among Youth). He emphasized the importance of promoting Indian classical music and Yoga among the young generation and how Indian classical music and dance help to deal mental stress and increase concentration.

## International Women's Day 2025

IIT Bhilai Innovation and Technology Foundation (IBITF), in collaboration with IIT Bhilai, hosted a grand celebration of International Women's Day 2025, bringing together distinguished personalities from various fields to honor and recognize the outstanding contributions of women in society. The celebration was graced by Padma Shri Phool Basan Bai Yadav, a renowned social reformer and founder of Maa Bamleshwari Janhitkari Samiti, as the Chief Guest. In her inspiring speech, she highlighted the resilience, strength, and transformative impact of women in society, advocating for collective efforts towards gender equality and empowerment.



नये फ़ैकल्टी का शामिल होना  
New Faculty Joining



**Dr Swati Yadav**  
Assistant Professor  
Department of Mathematics



**Dr Lalit Kumar Sahu**  
Assistant Professor  
Department of Electrical Engineering



**Dr Avijit Saha**  
Assistant Professor  
Department of Physics



**Dr Bhaskar Ghawri**  
Assistant Professor  
Department of Physics



**Dr Shobhit Pratap Singh**  
Assistant Professor  
Department of Materials Science and Metallurgical Engineering