



The Institution of Engineers (India)

MINING 4.0

Technology Vision for Safe, Smart
and Sustainable (3S) Mining"

04-05 January, 2025

IEI Engineer Bhawan, Doranda, Ranchi

Organized By



The Institution of Engineers (India)

A Century of Service to the Nation

Jharkhand State Centre

Under Aegis of Mining Engineering Division Board, IEI

In association with



Indian Institute of Technology (ISM)

Dhanbad



Central Institute of Mine and Fuel Research (CIMFR)

Dhanbad

The Institution of Engineers (India) or IEI is the largest multidisciplinary professional body that encompasses 15 engineering disciplines and gives engineers a global platform for sharing professional interest. IEI has membership strength of above 0.8 million. Established in 1920, with its headquarter Kolkata, IEI has served the engineering fraternity close to a century. During this period of time, IEI has been inextricably linked with the history of modern-day engineering.

In 1935, IEI was incorporated by Royal Charter and remains the only professional body in India which has been accorded this honour. Today, its quest for professional excellence has given it a place of pride in almost every prestigious and relevant organization across the globe. It provides a vast array of technical, professional and supporting services to the Government, Industries, Academia and the Engineering fraternity, operating through its 124 Centres located across the country and 6 overseas chapters. Besides, IEI has bilateral agreements with about 31 international bodies and membership of another 8 international bodies of the developed nations across the globe.

Being recognized as a Scientific and Research Organisation (SIRO) by the Department of Scientific and Industrial Research, Ministry of Science and Technology, Government of India, IEI promotes the cause of research and development by providing Grant-in-Aid support to undergraduate, post graduate students and PhD Research Scholars of Engineering Institutions and Universities.

IEI has been recognized as Scientific and Industrial Research Organization (SIRO) by the Ministry of Science & Technology, Government of India and besides conducting its' own research, provides Grant-in-Aid to UG/PG/PhD students of Engineering institutes and Universities.

IEI holds the International Professional Engineers (IntPE) Register for India under the global International Professional Engineers Alliance (IntPEA). The institution also awards the Professional Engineers (PE) Certification.

IEI in collaboration with Springer regularly publishes peer-reviewed international journal in five series, namely, Series A, Series B, Series C, Series D and Series E covering fifteen engineering disciplines.

About Jharkhand State Centre

The Ranchi Sub-Centre of The Institution of Engineers (India) founded on 23rd July 1961 and over the years, the sub-centre was upgraded to Local Centre on 5th August 1983 and elevated to State Centre on 30th March 2001 after the creation of Jharkhand State. This centre was always striven to increase its various activities so as to cater fully the needs of the engineering fraternity at Ranchi. This centre has been actively engaged in articulating various technical matters, and on the engineer's role in society and as managers. In addition to various technical activities, this centre has been actively associated in organizing cultural programmes by the wives of the members (EWA) to inculcate bond among members and their families. All Statutory Days such as Engineers day, World Water Day, World Telecommunication and Information Society Day, World Environment Day, etc. are celebrated every year with family members.



From a little hut to a campus with a three storied building, two conference halls, each capable of seating 100 people, office, library, guest an auditorium for 300 people, 3 classroom for continuous education has been an impressive journey. This has been possible only due to the

dedicated contributions of esteemed members, State Government, Public Sector Undertakings and Private Sector Organisations.

Jharkhand State Centre has been designated as 'A' category centre by The Institution of Engineers (India) with around 6000 corporate members and 7500 student members. This centre has been adjudged as 'Best Centre' for All Round Performance in the years 2007-08, 2008-09, 2010-11, 2015-16, 2016-17 and 2017-18 by The Institution of Engineers (India). Jharkhand State Centre has received All India Beat Technician Chapter Award for last four years in a row i.e. 2016-17, 2017-18, 2018-19 and 2019-20.

For more details please visit: www.ieijscjharkhand.org

About IIT-ISM, Dhanbad

Indian Institute of Technology (Indian School of Mines), Dhanbad, an autonomous institution of technical education established in 1926 and governed by the Institutes of Technology Act, 1961 (institution of National Importance), under administrative and Technical control by the Ministry of education, Govt. of India, located at Dhanbad, Jharkhand, INDIA

IIT (ISM) Dhanbad is an institute of National importance which caters to the needs of the Nation through teaching, research and professional development programmes in all fields of Science, Technology and Management, including Mining, Petroleum, Mining Machinery, Mineral Engineering, Earth Sciences, Electrical Engineering, Electronics Engineering, Environmental Science & Engineering, Computer Science & Engineering, Mechanical Engineering, Chemical Engineering, Civil Engineering, Applied Chemistry, Applied Mathematics, Applied Physics, Management, and Humanities & Social Sciences. It has 18 full-fledged Departments offering undergraduate, postgraduate, and doctoral-level courses. IIT(ISM) has contributed significantly to the growth and development of Mining, Mineral and Petroleum Exploration in India and abroad, thus contributing to the country's Industrial

Development in the last ninety decades. It has built research collaborations with various industries, universities and technical institutions across the globe and thus contributed to developing cutting-edge technologies in relevant areas.

IIT (ISM) has become Govt. of India's Technology Innovation Hub (TIH) in the Mining Vertical "Technologies for Mining" under the National Mission on Interdisciplinary Cyber Physical Systems (NM-ICPS). The major objective of TEXMiN (the Mining TIH) is to develop and implement cyber-physical systems for improved resource discovery, enhanced efficiency, and productivity in Indian mines by integrating Sensors, the Internet of Things, and Artificial Intelligence in Physical Systems for improved mineral discovery and product development and deployment, leading to Mining 4.0. The Department of Mining Engineering was established in 1926 with the founding of the Institute in that year by the then Viceroy of India, Lord Irwin. Over the past 96 years, it has developed and grown to become the largest Department of its kind in the country, with excellent facilities for teaching and research and widespread activities in coal, metalliferous mining, and construction sectors. Its high reputation attracts students from all parts of India and abroad. The Department is ranked 26th in QS World University Rankings for 2022 in Mineral & Mining. The only Engineering Department of the Country listed in Top 30 QS World University ranking.

About CIMFR, Dhanbad

CSIR-CENTRAL INSTITUTE OF MINING AND FUEL RESEARCH (CIMFR), DHANBAD, a constituent laboratory under the aegis of Council of Scientific and Industrial Research (CSIR), New Delhi aims to provide R&D inputs for the entire coal-energy chain encompassing exploration, mining and utilization. The laboratory also strives to develop mineral based industries to reach the targeted production for country's energy security and growth with high standards of safety, economy and cleaner environment. In view of the National Missions recently declared by the Government of India, CIMFR has re-aligned its vision, missions and policies and also redefined targets for short and long

terms. This would promote rapid sustainable national techno-economic growth with equal emphasis on self-sustenance

CSIR-CIMFR is located in the town of Dhanbad, known as coal capital of India of Jharkhand state of India. It is strategically situated in the Damodar basin of Eastern part of the country which is endowed with rich coal deposits and hosts several large mineral based industries.

Themes and Sub-themes

Sustainable mining is the need of the hour in the global mining industry, which will be technology-driven with AI and ML as the underpinnings. Mining will be sustainable when it operates harmoniously with society and the environment. In the wake of recent advancements in IT and digitalization, the current challenge of the mining sector is implementing Mining 4.0 with a focus on circular economy and sustainability. To address this challenge, the global mining industry will have to be flexibly built around innovative systems with a focus on smart technologies aiming to develop autonomous mining systems for energy-efficient, clean technologies that contribute to bulk production with due care to sustainability by waste minimization and waste re-use in an environmentally responsible manner. It is pertinent to mention that the ecological impact of underground mining is insignificant compared to opencast mining, and there is a need to refocus on underground mining. At the same time, the mining sector needs to be sustainable with substantial improvement in addressing social, environmental and economic aspects with the due thrust on the shift towards decarbonization and NetZero mining. This event will enable deliberation and dissemination of knowledge, practices and solutions on various environmental and social issues in mining, focussing on improvement in sustainability framework and responsible mining. The fruitful discussion at the event is expected to lead to a positive outcome that will benefit the mining industry and the community living around the mining area, particularly the nation in general.

Thematic Areas/Topics

1. Mineral Exploration: Enhanced Resource Discoveries and Locating Deep Concealed Deposits using CPS systems
2. Sustainable Mining and Community Engagement
3. Green Technology for Sustainable Mining
4. Responsible & Whole Mining
5. Mining of the future: NetZero Mining for Sustainability
6. Leveraging AI for Sustainable Mining
7. Thrust on Coal Production from Underground Mining
8. Automation and Digitalization for Sustainable Mining
9. Optimization of process management and operational performance through fast-developing DigitalTwin technologies
10. Smart Communication, Sensing and Monitoring Technologies
11. Reducing Green House Gas (GHG) emissions, and monetization of methane gas through CBM/CMM activities
12. Mineral Processing & Extraction
13. Urban municipal waste processing for energy and precious metal recovery
14. Extraction of Rare Earth Elements (REE) from coal and its by-products
15. Application of AI in Enhancing the Efficiency of Material Handling Systems in Coal and Mineral Processing and Process Metallurgy

Call for Papers

All interested participants are requested to contribute technical/ research papers and case studies detailing concept, innovation, idea or practical experiences for oral presentation. Each paper should begin with a synopsis of about 200 words and preferably within 3000 words excluding figures, tables and references. A brief bio-data (not more than half a page, affixing a photo) of the author(s) should accompany the paper.

The full paper for the conference is to be submitted in the following email: paper.mining4.0@gmail.com



Submission of Full Paper: 15th December 2024

Communication of acceptance of Paper: 17th December 2024

Proceedings

The proceedings of the seminar, including all accepted papers and write-ups on the subject, will be published and made available to the registered participants.

Registration

The registration fee for the Seminar will cover participation in Technical Sessions, Seminar Proceedings, Printed materials, Seminar kit, Lunch, Tea/coffee. Additional 18% GST will be applicable.

Category of Delegate	Delegate
Delegates from Academia/Institutes	Rs. 6000 + 18% GST
Delegates from Industries	Rs. 8000 + 18% GST
Research Scholars and Students	Rs. 1500 + 18% GST
Corporate Members of IEI	Rs. 2000 + 18% GST

For Guidelines for Submission of Papers scan the QR Code



https://www.ieindia.org/webui/IEI-Activities.aspx#Call_Papers

Advertisement Tariff

BACK COVER COLOUR PAGE	₹ 75,000 + 5% GST
INSIDE COVER COLOUR PAGE	₹ 60,000 + 5% GST
FULL COLOUR PAGE	₹ 40,000 + 5% GST
HALF COLOUR PAGE	₹ 20,000 + 5% GST

Sponsorship

Category	Amount	Free Delegates	Ad in Souvenir
Platinum Sponsor	5,00,000 + 18 % GST	8	Full Page Colour
Gold Sponsor	3,00,000 + 18 % GST	4	Full Page Colour
Silver Sponsor	2,00,000 + 18 % GST	3	Half Page Colour
Kit (Co-Sponsor)	2,00,000 + 18 % GST	3	Half Page Colour
Lunch Sponsor	2,00,000 + 18 % GST	3	Half Page Colour
Dinner Sponsor	3,00,000 + 18 % GST	4	Full Page Colour

Account Details

"The Institution of Engineers (I), JSC", payable at Ranchi

Account Number : 480102050000259

Bank's Name : Union Bank of India

Branch : Shyamali Colony, Doranda, Ranchi

IFSC Code : UBIN0548014

by A/C Payee Cheque/Demand Draft/Net Banking

About Ranchi

Ranchi is the capital of state of Jharkhand, which is endowed with rich iron ore and coal deposits. With its rich mineral resources and industrial base, Ranchi is rapidly developing into an important industrial sector in India. The city is surrounded by thick forests and beautiful natural waterfalls and still unspoiled by modern commercialism. Ranchi is located in eastern part of India, around 400 km from Kolkata. It has very pleasant climate throughout the year and the temperature in October may vary between +21°C and +26°C.

Travel

Domestic airlines operate between Ranchi and other major cities of India such as New Delhi, Mumbai, Kolkata, Bengaluru, Hyderabad, Raipur, Bhubaneswar and Patna. Ranchi is also well connected by rail and road with all major cities of the country, namely Bengaluru, Bhubaneswar, Chennai, Hyderabad, Jamshedpur, Jaipur, Kolkata, Mumbai, Nagpur, Patna, Raipur, New Delhi, Vishakhapatnam, etc.

Accommodation

Ranchi offers a wide range of accommodation to suit every budget. Both economy and luxury class hotels are located within 5 km from the directly or through Seminar Venue. Delegates are requested to book the accommodation in advance to get preferred choice.

National Advisory Committee

- Chairman: Dr G Ranganath, FIE, President, IEI
 Co-Chairman: Er. Prafulla Chandra Tiwari, Chairman, MNDB, IEI
 Convenor: Er. Md. M. I. Alam, Imm. Past Chairman, IEI, JSC
 Members: Dr. Nutan Kumar Dash, Vice President, IEI
 Er. Sukhviur Singh Mundi, Vice President, IEI
 Prof (Dr) Girish Shrikisan Mundada, Chairman, CATE, IEI
 Prof (Dr.) Netai Chandra Dey, Member, MNDB, IEI
 Dr. Arka Jyoti Das, Member, MNDB, IEI
 Dr. S. S. Prasad, DDG, (South Eastern Zone), Ranchi
 Er. Harun Ansari, Honorary Secretary, IEI, JSC

Advisory Committee

- Prof. Sukumar Mishra, Director, IIT(ISM), Dhanbad
 Dr. Arvind Kumar Mishra, Director, CIMFR, Dhanbad
 Er. Manoj Kumar, CMD, CMPDI, Ranchi
 Mr. Samiran Dutta, CMD, BCCL, Dhanbad
 Er. Nilendu Kumar Singh, CMD, CCL, Ranchi
 Er. S.K. Verma, CMD, MECON
 Er. Amit Raj, Director (T), MECON
 Er. Ajay Kumar, Director (T/P&D), CMPDI
 Er. Sanjay Kumar Singh, Director (T/OP), BCCL, Dhanbad
 Er. Satish Jha, Director (T/PP), CCL & Director (T/ES), CMPDI, Ranchi
 Er. Achyut Ghatak, Director (T/RD&T), CMPDI, Ranchi
 Er. Harish Duhan, Director (T/OP), CCL, Ranchi
 Er. Sanjiv Kumar Singh, Director (Mining), HCL
 Er. Animesh Jain, CEO, NML
 Er. D. B. Sundara Raman, Vice President RM, Tata Steel
 Er. Chanchal Goswami, Director (Mining), WPDCL
 Er. Arun Kumar Shukla, Advisor NMDC, Ex CMD HCL
 Er. R B Prasad, Advisor, NML
 Er. Paramjeet Singh, Director (Generation), PSPCL
 Er. Pankaj Satija, EIC, FAMD, Tata Steel
 Er. Anup Kumar, ED, SAIL

Organising Committee

Chairman: Er. Mahesh Kumar Gupta, Chairman, IEI, JSC
 Organising Chairman: Er. Shankar Nagachari, Director (T/CRD), CMPDI, Ranchi
 Co-chairman: Prof. Dheeraj Kumar, Deputy Director, IIT (ISM), Dhanbad
 Organising Secretary: Er. Harun Ansari, Honorary Secretary, IEI, JSC
 Convenor : Dr. Hemant Agrawal, Manager (Mining), CMPDI
 Co-convenor: Dr. Siddhartha Roy, Deputy Manager (Mining), CMPDI
 Members : Prof. Debashish Deb, IIT, Kharagpur
 Er. R. K. Kanshi, FIE
 Er. Jayant Chakravarty, RD, RI-III, CMPDI
 Er. S. K. Dubey, GM/T.S. to CMD, CMPDI
 Er. Amar Kant Mishra, GM(S&T), CMPDI
 Er. S. K. Bhagat, GM (Adm.) Coal India Ltd., Kolkata
 Dr. Peeyush Kumar, Managing Director BCGCL/ GM, CIL
 Er. Alok Kumar Singh, GM/T.S. to CMD, CCL, Ranchi
 Prof. R M Bhattacharjee, IIT (ISM), Dhanbad
 Prof. Sanjay Sharma, IIT (BHU)
 Prof. P.K. Singh, HoD (Mining), BIT Sindri

Technical Committee

Chairman: Dr. Murari Prasad Roy, Chief Scientist, CIMFR, Dhanbad
 Convenor: Dr. Vivek Kumar Himanshu, Sr. Scientist, CIMFR, Dhanbad
 Members: Prof. (Dr.) S. C. Bhowmick, IIT-ISM, Dhanbad
 Prof. D. P. Mishra, IIT (ISM), Dhanbad
 Prof. Amit Kumar Gorai, NIT Rourkela
 Er. Dhiraj Kumar, General Manager (Mining/TS), CMPDI
 Er. Milan Sen, Chief Manager (Mining/S&T), CMPDI
 Er. Chandranath Kumar, Sr. Manager (HD-L&D), MTI, SAIL
 Er. Supreme Mukherjee, Senior Manager (Mining), NTPC
 Er. Sagar Jain, Head (Technical Services & New project), Tata Steel
 Dr. Mukul Sharma, Mananger (Mining/CMC), CIL
 Prof. Pankaj Jain, Assistant Professor, IIT (ISM), Dhanbad
 Er. D. K. Khandekar, AGM, I/c, MECON Ltd.
 Er. Rakesh Pradhan, Manager (Mining), CMPDI
 Er. Mayank Ahuja, Deputy Manager (Mining/S&T), CMPDI

Logistics & Co-ordination Committee

Chairman : Er. Siyaranjan Kumar Singh, Past Chairman, IE (I), JSC
 Co-Chairman : Er. Chandrakant Raipat, Past Chairman, IE(I), JSC
 Members : Dr. Manoj Kumar, Past Honorary Secretary, IE(I), JSC
 Er. Prashant Deva, Member, Executive Committee
 Er. Manda Rajananda Kumar, Member, Executive Committee
 Er. P. Balasubhakar, General Manager, MECON Limited
 Er. M. Shakir, Member, Executive Committee
 Dr. J. Ghosh, Member, Executive Committee
 Er. S. R. Virsen, AGM, MECON Ltd.
 Er. Vishal H. Shah, Member, Executive Committee

Address for Correspondence

Er. Harun Ansari
Honorary Secretary, IEI, JSC
 IEI Engineers Bhawan,
 Nepal Kothi Campus, Doranda,
 Ranchi 834002, India
 Phone: 0651-3510412
 E-mail : jharkhandsc@ieindia.org

Prof. Dheeraj Kumar
 Co-Chairman
 Deputy Director,
 IIT (ISM), Dhanbad

Dr. Hemant Agrawal
 Convenor
 Manager (Mining), CMPDI
 Phone: +91-852880806
 Email: hemant.ism@gmail.com

All India Seminar on Technology Vision for Safe, Smart and Sustainable (3S) Mining"

IEI Engineer Bhawan, Doranda, Ranchi

To
The Hony. Secretary
The Institution of Engineers (India)
Jharkhand State Centre, IEI Engineer Bhawan
Nepal Kothi Campus, Doranda
Ranchi - 834 002, India

Dear Sir,

The following persons may please be registered as delegates for participation in the above seminar to be held at Ranchi

Sl No.	Name & Designation	Accompanying Spouse (Yes/No)	Category Registration (Organizational / Individual/ Educational Institute/Member IE(I)/ Student Member)	Payment Cheque/ Draft No. & Date	Enclosing Amount
1.					
2.					
3.					
4.					
5.					
6.					

SUPPORT

- * Platinum Gold Silver
* Vendors Lunch Dinner

SOUVENIR ADVERTISEMENT

- * Back Cover Outside (Colour) * Back Cover Inside (Colour)
* Front Cover Inside (Colour) * Inside Full Page (Colour)
* Half Page (Colour)

Full Postal Address
Telephone / Fax / Mobile No.
E-mail address :

* Extra GST will be applied as per Brochure

(Signature with Date)
Name & Designation