

# **OUTREACH TRAINING PROGRAMME of IIT Kharagpur**

on

## **Technological Advancements in Mine Mechanization and Management: *towards industry enabling by Industry 4.0 and digitalization***

(June 27-30, 2022)

Mining industry particularly the Coal Mining industry is passing through a critical transitional period because of current coal market dynamics, introduction of emerging technology, changes in geo-mining conditions and the societal perspectives towards coal mining industry. Technology replacement, deployment and management for exploration, delineation and extraction of coal deposits maintaining safety and productivity have many challenges particularly to justify cost effectiveness. Mining with preparedness for closure and post closure liabilities and with appropriate linking of principles of mining with the UN adopted 17 sustainability goals now call for a new dynamism in technological decision making in the industry. Thus, to transform the industry bringing positive changes in technology introduction and management, a fast track integrated efforts will be necessary in the field of:-

1. Adaption of Industry 4.0 in selection, operation, maintenance and management of Mining Machinery for excavation, loading, transport and quality management.
2. Data driven decision-making in planning, construction, development and operation of coalmines, coal handling plants, washery and coal despatch systems.
3. Practise of financial engineering in integrating mining asset management for mining with post mining liabilities along with normal mining financing and accounting.
4. Adoption of advanced technologies for integrated mine closure and mining operation for achieving commitments and obligations towards societal and environmental responsibilities.

IIT Kharagpur with its number of specialized departments and research groups can offer the technology awareness and knowledge dissemination training cum workshop for the Directors of different subsidiaries and other top level decision making officers of Coal India Limited.

A first of its kind training programme can be offered during June 27-30, 2022 as per the following schedule and venue

### **Tentative Schedule:**

**Venue:** IIT Kharagpur extension centre, Kolkata or Novotel Kolkata, New Town. A one day excursion to the Laboratories of IIT Kharagpur and Tata Hitachi Plant at Kharagpur. (A guided industrial tour to mining machinery manufacturing companies in India along with brainstorming workshops with manufacturing and serving experts at the plant sites can also be designed for offering on a later date.

Date	Session 1(FN)	Session 2(AN)
June 27, 2022	Mine Mechanization and Adoption of digital mining –towards Industry 4.0	Data driven decision-making in planning, construction, development and operation of coalmines, coal handling plants, washery and coal despatch systems
June 28, 2022	Integrating mining with post mining liabilities and Financial Engineering	Asset Management in Mining Industry and Enhancement of Capacity Utilization
June 29, 2022	Quality management in coal mining and adoption of advanced technologies	Technology for in Safety maturity and Environmental Security
June 30, 2022	6:00hours: Start from Kolkata 9:00hours: Arrival at TGH, IIT KGP 10:00hours: Visit to different laboratories of the Department of Mining Engineering 11:00hours: Visit to Steel centre, condition based maintenance lab, railway research lab, drone development lab etc 12:30hours: Valedictory function 13:30 hours: Lunch	15:00 hours: Visit to Tata Hitachi plant 16:30-17:30 hours: Technical Discussion on recent trends and future of excavator technology 18:00 Depart for Kolkata

- Coverage and contents can be modified through discussion

**Course fees: For this non-residential program** the course fee is Rs. 60000.00 per participant (@Rs.15, 000.00 per participant per day) for **a minimum of ten participants**. GST will have to be paid extra as per Gol rules. Not more than 20 participants will be accepted in the program.

**Course Coordinator:** Prof. Khanindra Pathak (9800877877, khanindra@mining.iitkgp.ac.in)

**Faculty and Laboratory involved:** From Departments of Mining Engineering, Mechanical Engineering, VGSOM, and School of Entrepreneurship, Electronics and Communication, Industrial and System Engineering