



**IIT** INDIAN INSTITUTE  
OF TECHNOLOGY  
**ISM** INDIAN SCHOOL OF MINES  
DHANBAD

# Department of Mining Engineering



## THE MINING EDGE

MONTHLY NEWSLETTER

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## From HoD's Desk

By Prof. D. P. Mishra



Dear Readers,

In this edition of the Newsletter, I am pleased to share with you some reflections on the recent trends shaping India's mining industry and the exciting opportunities that lie ahead. The mining sector in India, one of the key drivers of our economic growth, is undergoing a transformative phase driven by technological advancements, sustainability imperatives, and evolving global demands. As we chart the course for the future, it is essential to reflect on how these trends are influencing the industry and the critical role that educational institutions like ours will play in shaping the next generation of mining professionals.

In recent years, the mining industry has increasingly embraced the need for sustainable and green mining practices. India, like the rest of the world, is moving towards environmentally responsible mining, reducing its carbon footprint, and integrating green technologies. This shift includes the adoption of electric vehicles in mining operations, the use of AI and automation to optimize processes, and the implementation of more effective waste and water management systems. At IIT (ISM) Dhanbad, we are closely

aligned with these developments, not only through research but also in our curriculum, which emphasize sustainable mining practices. Our students are getting prepared to design and implement mining solutions that are both economically viable and environmentally friendly, contributing to the sector's transition towards greener operations.

Technology is the heart of the mining sector's evolution. The integration of automation, machine learning, and data analytics is revolutionizing the way mining operations are managed. From real-time monitoring to predictive maintenance, these technologies are improving operational efficiency, safety, and productivity. At IIT (ISM) Dhanbad, the Department of Mining Engineering is focusing on research and development in these areas, preparing our students and researchers to harness these technologies in the real-world mining environment. The future of mining is digital, and we are committed to ensuring that our graduates are equipped with the skills and knowledge to lead this transformation. In view of this, our Department is gearing up to offer an integrated B.Tech and MBA program focusing on mine digitalization and logistics management in collaboration with IIM Mumbai from the next academic year 2025-26.

As mining technologies evolve, so too does the need for a skilled workforce that can navigate this new landscape. India's mining industry requires professionals who are adept at managing cutting-edge technology while maintaining high standards of safety and sustainability.

The Department of Mining Engineering is committed to addressing this need through skill development and capacity building by offering specialized training, hands-on experience, and research opportunities that equip our students with both technical knowledge and practical skills.

Looking ahead, the future of mining in India is closely tied to innovation, sustainability, and education. As we continue to integrate cutting-edge technologies into our research and teaching, we remain committed to preparing our students to meet the challenges of tomorrow's mining industry. The rapid changes in the global mining landscape present an exciting opportunity for the Department to further solidify its position as a leader in mining education and research.

Additionally, we collaborate with industry partners to ensure that our curriculum remains relevant to current and future industry demands. In conclusion, as India's mining industry evolves to meet new demands, adopt new technologies, and focus on sustainability, the Department of Mining Engineering at IIT (ISM) Dhanbad will continue to be at the forefront of these changes. Our commitment to advancing mining engineering, nurturing talent, and contributing to the nation's growth remains unwavering. We look forward to collaborating with industry partners, government bodies, and communities to build a robust, sustainable, and technologically advanced future for India's mining sector.

Warm regards,  
D. P. Mishra



## Sponsored Projects

**Prof. B. S. Chaudhary** is awarded “Scientific study as per Reg. 196(3) of CMR - 2017 for designing of controlled deep hole blasting method at Amalgamated Salanpur Gajlitand Katras Choutudih Colliery” from M/s R K Coal Mines Pvt. Ltd., Salanpur.

**Prof. R. K. Sinha** is awarded “Testing of Swelling Properties of Phyllitic Rock” from M/s Teesta- VI HE Project of Lanco Teesta Hydro Project Ltd.

**Prof. B. S. Chaudhary** is awarded “Scientific study for designing deep hole controlled blasting in Mega C2 patch Opencast Project of Bhowra (N) Colliery, Eastern Jharia Area as per regulation No. 196(3) of CMR – 2017 for the safety of the residential buildings.” from M/s BCCL, Dhanbad.

**Prof. D. P. Mishra, Prof. P. Sahu, and Prof. Ankush Galav** have Conducted a Executive Development Programme on “Mining Technology” including Mine Site Visits and Classroom Session for M/s. Caterpillar.



Visit of the Participants to the Main Workshop of Northern Coalfields Limited





**Prof. Sukumar Mishra, Director, IIT(ISM) Dhanbad Felicitating the Guests from Caterpillar**



**Distribution of Certificates to the Participants**



**Valedictory Function of the Training Programme**



## Mine Survey Camp



M.Tech (Geomatics) students of Department of Mining Engineering, recently participated in a survey camp organized under the expert guidance of **Prof. Dheeraj Kumar** and **Prof. V. G. K. Villuri**. This invaluable experience provided hands-on training in various surveying techniques, including Modern Surveying Instruments such as Total Station, GPS, Terrestrial Laser Scanner and many more.

The camp offered a unique opportunity to apply theoretical knowledge to real-world scenarios. By working in teams and collaborating with fellow students, participants developed essential skills such as problem-solving, critical thinking, and teamwork.

The guidance and expertise of the professors ensured a comprehensive learning experience. This survey camp has significantly enhanced understanding of the participants of the surveying instruments, techniques and principles.

## Observation of the Constitution Day



In celebration of 75th National Constitution Day i.e., on **26 November 2024** professors, technical staffs, and project staffs came together to take a collective pledge, reaffirming their commitment to the core values enshrined in the Indian Constitution.

These values often include:

**Sovereignty, Socialism, Secularism, Democracy, and Republic:** Upholding India's nationhood. **Justice, Liberty, Equality, and Fraternity:** Striving to ensure these fundamental rights for all citizens.

**National Integration:** Promoting unity and harmony among diverse communities.

**Respect for the Constitution:** Adhering to the laws and procedures outlined in the Constitution.

**Fundamental Duties:** Fulfilling one's civic responsibilities as a citizen of India.

## Faculty Profile of the Department



**Prof. V M S R Murthy**  
Professor (HAG)  
On Deputation As Director  
IIST Shibpur

**Research Interest:**  
Rock Excavation Engineering



**Prof. Arvind Kumar Mishra**  
Professor (HAG)  
On Deputation As Director  
CIMFR

**Research Interest:**  
Explosive Engineering, Rock  
Blasting Technology, Rock  
Excavation Engineering,  
Opencast Mining



**Prof. Dheeraj Kumar**  
Professor (HAG)

**Research Interest:**  
Digital Mining Technologies,  
Mine Surveying & Geospatial  
Technologies



**Prof. R M Bhattacharjee**  
Professor

**Research Interest:**  
Underground Coal Mining  
Technology, Risk Assessment  
And Safety Management,  
Emergency Response &  
Disaster Management,  
Accident Investigation, Mine  
Fire And Explosion



**Prof. Devi Prasad Mishra**  
Professor

**Research Interest:**  
Mine Ventilation And Environmental  
Engineering, Mine Fire And  
Explosion, Application Of CFD In  
Mine Ventilation And Environmental  
Engineering, Methane  
Drainage/CBM/UCCG,  
Stowing/backfilling With Fly  
Ash/pond Ash, Characterization Of  
Fly Ash/pond Ash



**Prof. Bhanwar Singh  
Choudhary**  
Professor

**Research Interest:**  
Drilling & Blasting Technology,  
Underground Metal Mines,  
Computer Aided Mine Planning,  
Tunnel Engineering



**Prof. Subhas Chandra  
Bhowmik**  
Adjunct Professor

**Research Interest:**  
Underground Metal Mine,  
Green Field Project from  
Planning to Operation, Shaft  
Sinking



**Prof. Anindya Sinha**  
Professor Of Practice

**Research Interest:**  
Mine Planning & Design,  
Mine Environment  
Planning & Management,  
Mine Mechanization &  
Digitization



**Prof. Partha Sarathi Paul**  
Associate Professor

**Research Interest:**  
Core Mining Discipline: Mine Safety  
Engineering; Occupational Health,  
Safety And Ergonomics; Applied  
Multivariate Modeling And ML  
Techniques; Rock Mechanics; Mine  
Ventilation. Interdisciplinary:  
Automation For Workplace Safety;  
Socio-economic Impact Of Mining.



**Prof. Rabindra Kumar Sinha**  
Associate Professor

**Research Interest:**  
Design of Structures in Rock,  
In situ Rock Mechanics  
Investigations, Numerical  
Modelling



**Prof. Vasanta Govind  
Kumar Villuri**  
Associate Professor

**Research Interest:**  
Photogrammetry,  
Cartography, Remote Sensing,  
GIS And GPS



**Prof. Radhakanta Koner**  
Associate Professor

**Research Interest:**  
Mine Automation, Data Analytics,  
Georesources Utilization Using  
Remote Sensing Technology,  
Slope Stability Analysis, Landslide  
Analysis, Wireless Sensing  
Technology, Real-time Monitoring  
System In Mining



## Faculty Profile of the Department



**Prof. Patitapaban Sahu**  
Associate Professor  
**Research Interest:**  
Mine Ventilation, Sub-  
surface Environmental  
Engineering, Mine  
Radiation, CBM And Data  
Analytics In Mining



**Prof. Gnananandh Budi**  
Assistant Professor  
**Research Interest:**  
Rock Mechanics And Ground  
Control



**Prof. Kashinath Pal**  
Assistant Professor  
**Research Interest:**  
Rock Mechanics,  
Groundwater, Slope  
Stability



**Prof. Mohammad Soyeb  
Alam**  
Assistant Professor  
**Research Interest:**  
Geospatial Technology In  
Mining, Underground Metal  
Mining, Mine Subsidence  
Studies, Mine Slope Stability  
Analysis, Mine Surveying



**Prof. Siddhartha Agarwal**  
Assistant Professor  
**Research Interest:**  
Digitalization Of Mining  
Operations, Industry 4.0  
Applications In Mining, Machine  
Learning And Artificial Intelligence  
Applications In Energy  
Consumption In Mines, Earth  
Sciences: Geostatistics, Open Pit  
Mine Planning & Scheduling, Real  
Time Monitoring Of Air Pollution In  
Open Cast Mines, Geo-technical  
And Environmental Closure And  
Repurposing Planning



**Prof. Swapnil Mishra**  
Assistant Professor  
**Research Interest:**  
Blast Resistant Design of  
Underground Structures, In-  
situ Stresses Surrounding  
Underground Structures,  
Impact Testing on Weak and  
Weathered Rock Conditions,  
Ground Subsidence, Rock  
Dynamics and Material  
Testing, Physical Modelling



**Prof. Ashok Kumar**  
Assistant Professor  
**Research Interest:**  
Underground Mining Methods,  
Strata/Rock Mechanics,  
Numerical Modeling,  
Underground Instrumentation  
And Monitoring Of Strata,  
Support Design, Rockmass  
Characterisation, Excavation  
Methods For Tunnels & Caverns,  
Drilling & Blasting, Operations  
Research, Mine Environment,  
Surface Mining



**Prof. Dondapati Gopai  
Krishna**  
Assistant Professor  
**Research Interest:**  
Rock Mechanics,  
Numerical Modeling in  
Geotechnical  
Engineering, Coal Mining,  
Mine Instrumentation  
and Monitoring



**Prof. Bhaskara Behera**  
Assistant Professor  
**Research Interest:**  
Rock Mechanics And Ground  
Control, Mining Methods,  
Numerical Methods In  
Geomechanics, Mine Planning  
And Design



**Prof. Ajeet Yadav**  
Assistant Professor  
**Research Interest:**  
Rock Mechanics and Ground  
Control, Mining Methods,  
Mine Ventilation, Numerical  
Modelling



**Prof. Ankush Galav**  
Assistant Professor  
**Research Interest:**  
Rock Mechanics and Ground  
Control, Mining Methods,  
Rock Excavation Engineering,  
Numerical Modelling, Mine  
Planning and Design, Mine  
Instrumentation and  
Monitoring



# 2024 CALENDAR

## JANUARY

M	T	W	T	F	S	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

## FEBRUARY

M	T	W	T	F	S	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29			

## MARCH

M	T	W	T	F	S	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

## APRIL

M	T	W	T	F	S	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30					

## MAY

M	T	W	T	F	S	S
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

## JUNE

M	T	W	T	F	S	S
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30

## JULY

M	T	W	T	F	S	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

## AUGUST

M	T	W	T	F	S	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

## SEPTEMBER

M	T	W	T	F	S	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23/30	24	25	26	27	28	29

## OCTOBER

M	T	W	T	F	S	S
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

## NOVEMBER

M	T	W	T	F	S	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	

## DECEMBER

M	T	W	T	F	S	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23/30	24/31	25	26	27	28	29

## 2024 Calendar of Important Mining Days

4th April : International Day for Mine Awareness and Assistance in Mine Action

22nd April : World Earth Day

1st May : International Labour Day

4th May : Coal Miners Day

23rd June : International Women in Engineering Day

30th October : Mine Rescue Day

1st November : Coal India Foundation Day

1st November : Indian Mining Day

5th December : World Soil Day

11th December : International Mountain Day

14th December : National Energy Conservation Day