



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

Department of Mining Engineering



THE MINING EDGE

MONTHLY NEWSLETTER

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Content

• HOD's Desk	01
• M.Tech Graduates 2026	02
• GeoNX 2026 (Industry-Academia Workshop)	03
• Glimpses of GeoNX 2026	04
• Mining Updates	05
• Faculty Achievement	06
• Student Achievement	07
• Publications & Projects	08
• Faculty Profiles	09 - 11
• Miner's Calendar 2026	12

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From HOD Desk



Dear Readers,

It gives me immense pleasure to present 21st edition of The Mining Edge, highlighting the diverse achievements and activities of the Department of Mining Engineering, IIT (ISM) Dhanbad. The past month has been marked by significant academic, research, and professional accomplishments that reflect our continued commitment to excellence in mining education, research, and industry engagement.

I am delighted to note the successful organization of GeoNX 2026, an expert discussion and hands-on workshop on advanced geotechnical modelling using MIDAS GTS NX. The enthusiastic participation of students, researchers, faculty members, and industry professionals reaffirmed the importance of strengthening academia-industry collaboration and promoting cutting-edge technological applications in mining and geotechnical engineering.

Our faculty members continue to contribute significantly to research and professional development. The sanction of an ANRF-funded Advanced Research Grant on strata behaviour and Continuous Miner technology, along with the award of the ANRF International Travel Support Grant to Prof. Ashok Kumar, are noteworthy achievements that enhance the Department's research profile and global outreach. Further, the Department's engagement with industry through the upcoming executive training programme for Hindustan Zinc Limited reflects the trust reposed in our expertise and training capabilities.

I also extend my heartfelt congratulations to our graduating M.Tech students and to those who have secured placements in reputed organizations. Their achievements are a testament to their dedication, perseverance, and the quality of academic and professional training imparted by the Department. We are confident that they will emerge as capable professionals and ambassadors of our institution in the years ahead.

As we move forward, the Department remains committed to fostering innovation, interdisciplinary research, industry collaboration, and the holistic development of our students. I encourage all members of our academic community to continue striving for excellence and to contribute meaningfully towards the advancement of sustainable and responsible mining practices.

I thank the editorial team, faculty members, students, alumni, and industry partners for their continued support and contributions to the Department's growth and success.

Warm regards,

Prof. B. S. Choudhary

Head of the Department

Department of Mining Engineering

IIT (ISM) Dhanbad

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M.Tech Graduates 2026



The Department of Mining Engineering extends its heartfelt congratulations to the final-year M.Tech students of all specializations (Mining, Geomatics & TUST) who have successfully completed their postgraduate studies. Their dedication, perseverance, and commitment to academic excellence have been commendable throughout their academic journey.

The Department takes pride in their achievements and is confident that they will make significant contributions to the mining industry, academia, research organizations, and allied sectors. As they embark on the next phase of their professional careers, we wish them continued success, growth, and fulfillment in all their future endeavors.

We look forward to witnessing their accomplishments and contributions as distinguished alumni of the Department of Mining Engineering.

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GeoNX 2026 (Industry-Academia Workshop on Advanced Geotechnical Modelling)

The Departments of Mining Engineering and Civil Engineering, IIT (ISM) Dhanbad, successfully organized GeoNX 2026, a two-day Expert Discussion and Hands-on Workshop on Slope Stability, Tunnelling and Open-Pit Mining using MIDAS GTS NX, on 8–9 May 2026. The programme focused on the advanced application of MIDAS GTS NX software for geotechnical analysis and design in mining and civil engineering projects.

The event witnessed the participation of approximately 80 attendees, including students, faculty members, researchers, and industry professionals. The programme featured expert lectures, technical discussions, and intensive hands-on training sessions covering contemporary practices in slope engineering, tunnelling, and open-pit mining. The technical sessions were delivered by **Mr. Chiranjib Sarkar, Principal Engineer, GEOCONSULT India Pvt. Ltd.**, and **Dr. Siddharth Pathak, Technical Support Engineer, MIDAS**, who shared their extensive industry experience and expertise in advanced geotechnical modelling and numerical analysis. Participants gained practical exposure to advanced numerical modelling techniques and geotechnical analyses using the MIDAS GTS NX platform under their guidance.



The workshop also served as a platform for promoting innovative and practical engineering solutions through strengthened academia–industry collaboration. In addition, it highlighted the research strengths and infrastructural capabilities of the Departments of Mining Engineering and Civil Engineering at IIT (ISM) Dhanbad. The event facilitated meaningful interactions among participants and experts, thereby contributing to professional networking, knowledge exchange, and enhanced career opportunities for postgraduate students and doctoral scholars.

The successful conduct of GeoNX 2026 reaffirmed the institute's commitment to advancing technical education, fostering interdisciplinary collaboration, and equipping future engineers with state-of-the-art analytical and modelling skills relevant to the evolving needs of the mining and geotechnical engineering sectors.

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Glimpses of GeoNX 2026



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Mining Updates

India Accelerates Coal Gasification to Strengthen Energy Security and Industrial Growth:

The Government of India has approved a US\$3.92 billion (approximately ₹32,000 crore) scheme to promote coal gasification projects, with the objective of reducing dependence on imported fuels and enhancing the utilization of domestic coal resources for cleaner industrial applications. The initiative seeks to encourage the conversion of coal into synthetic gas, which can be used in the production of electricity, fertilizers, petrochemicals, and various other industrial products.

According to Union Minister Ashwini Vaishnaw, the programme is expected to reduce India's imports of liquefied natural gas (LNG), urea, ammonia, and methanol, thereby improving the country's energy and resource security. The initiative gains particular importance in the context of disruptions in global energy supply chains and challenges affecting natural gas imports due to geopolitical developments in the Middle East.



The conversion of coal into synthetic gas can be used to produce power, fertiliser, petrochemical among other industrial applications. PHOTO: REUTERS

Coal gasification has emerged as a strategic technology worldwide, with countries such as the United States and China exploring its potential to support energy security while pursuing lower-emission industrial processes. India, possessing one of the world's largest coal reserves—estimated at 401 billion tonnes of coal and 47 billion tonnes of lignite—plans to gasify approximately 75 million tonnes of coal annually under the programme.

The scheme is expected to attract investments of nearly ₹3 trillion and stimulate the development of a domestic coal-to-chemicals and coal-to-gas industry. To encourage participation, the Government will provide financial assistance equivalent to approximately 20% of the cost of plant and machinery for eligible projects.

Interest in coal gasification is also increasing among major energy producers. State-owned power utility NTPC has announced plans to enter the coal gasification sector, targeting the production of 5–10 million tonnes of synthetic gas annually over the next three to four years. The initiative is anticipated to play a significant role in diversifying India's energy portfolio, promoting value addition to domestic coal resources, and supporting the country's long-term industrial and economic development objectives.

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Faculty Achievement



Prof. Ashok Kumar, Assistant Professor of the Department of Mining Engineering, IIT (ISM) Dhanbad has been awarded the prestigious International Travel Support (ITS) Grant by the Anusandhan National Research Foundation (ANRF). The grant has been sanctioned to support his participation in the 60th US Rock Mechanics / Geomechanics Symposium, scheduled to be held from 21–24 June 2026 in Tucson, Arizona, USA.

The symposium is being organized by the American Rock Mechanics Association (ARMA) and hosted by the University of Arizona, Tucson, Arizona, USA. Recognized as one of the leading international forums in the field of rock mechanics and geomechanics, the event brings together researchers, academicians, industry professionals, and policymakers from across the globe to discuss recent advances, emerging challenges, and innovative solutions in the discipline.

The award of the ANRF ITS Grant reflects Prof. Kumar's significant academic contributions and provides an opportunity to showcase the research activities of the Department of Mining Engineering on an international platform while fostering global scientific collaboration.

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Student Achievement

The Department of Mining Engineering is delighted to announce the successful placement of its students in SMS Limited for the position of Graduate Engineer Trainee (GET). The following students from the Department of Mining Engineering were selected during the campus recruitment process:

Name	Discipline
Mr. Devendra Singh	M.Tech (Mining Engineering)
Mr. Pushpraj Singh Kanwar	M.Tech (Mining Engineering)
Mr. Govind Pratap Singh	M.Tech (TUST)

The following students from M.Tech Mining have been selected for placement at Gaurang Environmental Solutions Pvt. Ltd., an environmental consulting and sustainability solutions company based in Jaipur, Rajasthan.

Name	Discipline
Mr. Saksham Jain	M.Tech (Mining Engineering)
Mr. Aman Kumar Singh	M.Tech (Mining Engineering)
Mr. Gugulothu Sravan Kumar	M.Tech (Mining Engineering)

This achievement reflects the students' technical competence, dedication, and readiness to contribute to the mining and infrastructure sectors.

Congratulations to all of them!!

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Publications & Projects

Journal and Book Chapter

- Verma, R., Choudhary, B.S., Deressa, G.W. et al. Pre-blast prediction of ground vibration in surface mining using rock acoustic impedance and wave attenuation calibrated with in-situ measurements. Sci Rep (2026).
<https://doi.org/10.1038/s41598-026-52066-w>

Research & Consultancy Projects

- Prof. Ashok Kumar (Principal Investigator) and Prof. Santosh Kumar Behera (Co-Principal Investigator) have been awarded an R&D project titled “Assessment of Stand-up Time of Freshly Exposed Unsupported Overlying Strata for Safe Working with Continuous Miner Technology in Indian Coalfields” under the Advanced Research Grant (ARG) Programme of the Anusandhan National Research Foundation (ANRF). The project was sanctioned on 23 May 2026 with a total approved cost of ₹62.88 lakh.

Executive Development Programme

- The Department of Mining Engineering, IIT (ISM) Dhanbad, has been entrusted with conducting a seven-week training programme titled “Professional Development Program on Geotechnical Engineering in Mining” for the executives of Hindustan Zinc Limited, Udaipur. The programme, valued at approximately ₹93 lakh, will be coordinated by Prof. B.S. Choudhary as the Programme Coordinator (PC), with Prof. D.G. Krishna, Prof. Ankush Galav, Prof. Santosh Kumar Behera, and Prof. P.R. Sahu serving as Co-Programme Coordinators (Co-PCs).

DEPARTMENT OF MINING ENGINEERING

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/UCG,
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. Partha Sarathi Paul
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. Anindya Sinha
Professor of Practice

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



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



Prof. Patitapaban Sahu
Associate Professor

Research Interest:
Mine Ventilation, Sub-Surface
Environmental
Engineering, Mine
Radiation, CBM and Data
Analytics In Mining



DEPARTMENT OF MINING ENGINEERING

Faculty Profile of the Department



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, Geotechnical 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 Gopi 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



Prof. Santosh Kumar Behera
Assistant Professor

Research Interest:
Paste backfilling, underground metal mining, underground metal mine backfilling, underground coal mine stowing and associated mining methods, fly ash filling in open cast mines, and slope stability.



Prof. Maitreya Mohan Sahoo
Assistant Professor

Research Interest:
Remote Sensing, Geographical Information System, Geoinformatics, Digital Image Processing, Geological Spectroscopy, Hyperspectral Mixing and Unmixing, Super-Resolution, Digital Twin Technology, Artificial Intelligence



**DEPARTMENT OF
MINING ENGINEERING****Faculty Profile of the Department**

Prof. Satish Kumar Sinha
Visiting Professor

Research Interest:

Environmental Sustainability,
Six Sigma in Mining, Mine
Surveying, Risk & Safety
Management



Prof. Arka Jyoti Das
Assistant Professor

Research Interest:

Mining methods, mine design,
rock mechanics, geomechanics,
stability analysis, ground
control, and geotechnical
monitoring.



Prof. Sudhir Kumar Singh
Assistant Professor

Research Interest:

Artificial Intelligence & Machine
Learning for Mining &
Geotechnical Applications,
Slope Stability Modelling



2026 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	

MARCH

M	T	W	T	F	S	S
30	31					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

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
31					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

SEPTEMBER

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

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
30						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

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	24	25	26	27
28	29	30	31			

2026 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

9th December : Foundation Day

11th December : International Mountain Day

14th December : National Energy Conservation Day

