INDIAN INSTITUTE OF TECHNOLOGY
INDIAN SCHOOL OF MINES
DHANBAD

Department of Mining Engineering

THE MINING EDGE

MONTHLY NEWSLETTER

VOLUME 9

May 2025

Content

- From HOD's Desk ...01
- Signing of MoU with Quality Council of India (QCI) ...02
- One-Week Training Program on Accident Investigation based on Root Cause Analysis ...03
- Research Publications & Projects ...05
- Establishment of Mineral Reclamation & Ecological Restoration (MRER) Cell ...05
- Visit of Dr. S.K. Sinha, Director (Operations) of Hindustan Copper Limited (HCL) ...06
- Farewell meet of Prof. S.C. Bhowmik ...07
- Farewell Ceremony of B.Tech and M.Tech Students ...08
- International Conference "Digital Intelligence for Green Mining and Industrial Networks"(DIGMIN-2025) ...10
- Faculty Profile of the Department ...11
- Mining Days Calendar ...13

Editorial Board

भारतीय प्रौद्योगिकी संस्थान भारतीय खनि विद्यापीठ धनबाद
IIT ISM INDIAN INSTITUTE OF TECHNOLOGY INDIAN SCHOOL OF MINES DHANBAD
Legacy that Inspires the Future

DEPARTMENT OF MINING ENGINEERING

From HoD's Desk

Dear Readers,

It gives me immense pleasure to present the May 2025 edition of The Mining Edge, the monthly newsletter of the Department of Mining Engineering at IIT (ISM) Dhanbad. This publication is a testament to the collective efforts, achievements, and aspirations of our department.

The past month has been intellectually enriching, marked by significant academic, research, and outreach initiatives. Notably, the successful conduct of the One-Week Training Program on "Accident Investigation Based on Root Cause Analysis" for the executives of Northern Coalfields Limited reflects our steadfast commitment to promoting a culture of safety and operational excellence in the mining industry.

We were honoured to host Dr. S.K. Sinha, Director (Operations) at Hindustan Copper Limited, for a meaningful dialogue on strengthening industry-academia collaboration. Another key milestone was the establishment of the Mineral Reclamation & Ecological Restoration (MRER) Cell, a strategic step towards sustainable mining. This initiative brings together global expertise and interdisciplinary leadership to address pressing mining-induced environmental challenges.

Our recent MoU signing with the Quality Council of India (QCI) further reinforces our dedication to excellence in quality, innovation, and knowledge transfer. These developments, along with our sustained research contributions, reflect the vibrant academic environment cultivated by our faculty and scholars.

We also had the privilege of bidding farewell to Prof. S.C. Bhowmik and celebrating the graduation of our B.Tech and M.Tech students. Their contributions have left a lasting impact on the department's legacy.

As we prepare for the International Conference on Digital Intelligence for Green Mining and Industrial Networks (DIGMIN-2025) in September, we reaffirm our commitment to foster our vision in mine digitalization and green mining.

I extend my heartfelt gratitude to all faculty members, staff, students, alumni, and industry partners for their continued support and dedication to our shared vision. Let us move forward with purpose and strive for excellence in all our endeavours for the betterment of the Mining Industry.

Warm regards,
Prof. D.P. Mishra

भारतीय प्रौद्योगिकी संस्थान भारतीय खनि विद्यापीठ धनबाद
IIT ISM INDIAN INSTITUTE OF TECHNOLOGY INDIAN SCHOOL OF MINES DHANBAD
Legacy that Inspires the Future

DEPARTMENT OF MINING ENGINEERING

Signing of MoU with Quality Council of India (QCI)

A Memorandum of Understanding (MoU) between IIT (ISM) Dhanbad and the Quality Council of India (QCI) was signed on 9 May 2025 to establish a robust framework for cooperation in the fields of quality improvement, research, education, and innovation focusing mining engineering and allied disciplines. Prof. D.P. Mishra, HoD, Department of Mining Engineering signed the MoU on behalf of IIT (ISM) Dhanbad. Mr. H.B. Chawla, Principal Advisor, QCI, accompanied by Mr. Utkarsh Pandey, Associate Manager, QCI and Mr. Shreyus RV, Associate Manager, QCI, signed the MoU on behalf of QCI.

The MoU aims to promote mutual collaboration in the areas of standardization, accreditation, and conformity assessment, while encouraging knowledge exchange through joint research projects, training programs, internship program, and academic-industry partnerships. Through this initiative, both institutions will work towards strengthening India's quality infrastructure and contribute to national development goals, especially in sectors like manufacturing, services, and sustainability.

This strategic alliance will also create opportunities for the students, researchers, and faculty members to engage in interdisciplinary research, policy advocacy, and skill-building efforts aligned with national and international quality benchmarks. The collaboration is expected to drive innovation and enhance India's global competitiveness by embedding quality consciousness across institutions and industries.

The partnership reflects IIT(ISM)'s commitment towards academic excellence and contributions to national missions through strategic linkages.

One-Week Training Program on Accident Investigation based on Root Cause Analysis

Sitting (L to R) : S/Shri: Prof. Ankush Galav, Gulam Haidar, Chandra Mohan Gupta, Surendra Kumar Dwivedi, Prof. Dondapati Gopi Krishna, Prof. Anindya Sinha, Prof. R. M. Bhattacharjee (Coordinator), Prof. Dheeraj Kumar (Deputy Director), Prof. B. S. Choudhary (HOD C/D) Prof. Mohammad Soyeb Alam, Raghwendra Singh, Manoj Kumar Pandey, Ashish Tripathi, Nagendra Kumar.

Standing (L to R) : S/Shri: Sharish Kumar Nigam, Deepak Kumar Jaiswal, Sumit Singh, J K Prasad, Surendra Kumar, Vimal Kumar Vishwakarma, Umakant Gupta, Jai Praksh Trivedi, Ambrish Kosgi, Arunendra Awadhiya, Sanatan Badatya, Ujjwal Kumar, Kumar Gaurav, Pavan Kumar Nogia, Sudhir Kumar.

The Department of Mining Engineering organised a One-Week Training Program on "Accident Investigation Based on Root Cause Analysis" for the executives of Northern Coalfields Limited (NCL) from 22-28 May 2025. The program was coordinated by Prof. R.M. Bhattacharjee, a leading expert in mine safety and operations. The inaugural ceremony was graced by Prof. Dheeraj Kumar, Deputy Director, IIT (ISM) Dhanbad, who presided over the function and highlighted the importance of such specialized training programs in fostering a culture of safety and operational excellence in the mining industry. Prof. B.S. Chaudhary, HOD (CD), Department of Mining Engineering, IIT (ISM) Dhanbad, introduced the Department of Mining Engineering and highlighted the program's objectives, stressing the need for such courses in ensuring the safe working environment in the mines.

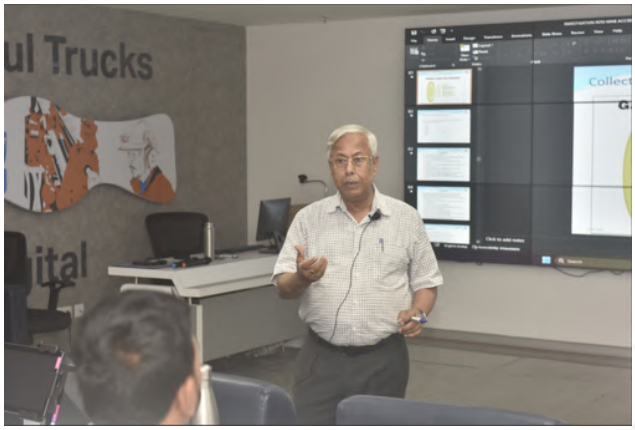
The training program aimed to enhance the participants' knowledge and skills in accident investigation methodologies, emphasizing Root Cause Analysis (RCA) as a proactive tool to mitigate and prevent future occurrences in mining operations. The Training Program included in-depth sessions on accident causation models and RCA techniques, case studies from real-life mining incidents, hands-on practices, and group activities to simulate RCA procedures, discussions on regulatory frameworks and preventive strategies, and interactive lectures delivered by eminent faculty and industry experts.

भारतीय प्रौद्योगिकी संस्थान भारतीय खनि विद्यापीठ धनबाद
IIT ISM INDIAN INSTITUTE OF TECHNOLOGY INDIAN SCHOOL OF MINES DHANBAD
Legacy that Inspires the Future

DEPARTMENT OF MINING ENGINEERING

The participants, comprising senior executives from NCL, engaged enthusiastically throughout the course, contributing to the collaborative learning environment. This initiative reflects the ongoing commitment of IIT (ISM) Dhanbad and Northern Coalfields Limited towards fostering a safer and more efficient work environment in the Indian coal mining sector.

The program concluded on 28 May 2025 with a valedictory session, during which participants received their training completion certificate from Prof. D.P. Mishra, HOD, Department of Mining Engineering, IIT (ISM) Dhanbad, and Prof. R.M. Bhattacharjee, Course Coordinator, and shared their experiences and takeaways of the insightful and practice-oriented training program.



भारतीय प्रौद्योगिकी संस्थान भारतीय खनि विद्यापीठ धनबाद
IIT ISM INDIAN INSTITUTE OF TECHNOLOGY INDIAN SCHOOL OF MINES DHANBAD
Legacy that Inspires the Future
DEPARTMENT OF MINING ENGINEERING

Research Publications & Projects

Research Publications

- Katariya N.K., Choudhary B.S., Falak M.E. & Raina A. K. (2025) Analysis of floral biodiversity, survival, and growth rate in dump slope rehabilitation of an iron ore mine with jute geotextile. International Journal of Phytoremediation, 1–17. https://doi.org/10.1080/15226514.2025.2501426

Projects

- Prof B. S. Choudhary and Prof D.G.P. Krishna have been awarded "Scientific study to design an appropriate blasting methodology tailored to the site conditions ensuring minimal impact on the failure zone and overall slope stability at ROCP colliery, Bastacolla Area, BCCL" from M/s BCCL, Dhanbad
- Prof D.G.P. Krishna and Prof B. S. Choudhary have been awarded "Scientific Study to Assess the Feasibility of Implementing Blast-Less Mining Technology and the Use of Surface Miner Near Existing Habitats"

Establishment of Mineral Reclamation & Ecological Restoration (MRER) Cell

The Department of Mining Engineering, IIT (ISM) Dhanbad has set up an interdisciplinary Mineral Reclamation & Ecological Restoration (MRER) Cell—a research and technology hub dedicated to restoring land and ecosystems affected by mining. Drawing on the Institute's broad expertise, the Cell will advance cutting-edge science, develop practical technologies and offer specialised training to ensure that mined-out areas return to productive and sustainable use.

The MRER Cell will be headed by Prof. Anindya Sinha, Professor of Practice, Department of Mining Engineering, IIT (ISM) Dhanbad. The core team includes Prof. S.K. Maiti, Professor, Environmental Science & Engineering, Prof. Mohd. Shoyeb Alam, Assistant Professor, Mining Engineering, and Prof. S. Agrawal, Assistant Professor, Mining Engineering. The Cell will also be guided by the international advisors, namely Prof. Y.P. Chugh, Southern Illinois University, USA and Distinguished Member, ASRS, Prof. Jan Frouz, Biology Centre CAS and Charles University, Czech Republic, and Prof. Anna Ostręga, AGH University of Mining & Metallurgy, Poland.

Visit of Dr. S.K. Sinha, Director (Operations) of Hindustan Copper Limited (HCL)

The Department of Mining Engineering hosted Dr. S. K. Sinha, Director (Operations) of Hindustan Copper Limited (HCL) along with his team comprising the senior executives of HCL on 22 May 2025. Prof. B.S. Chaudhary, HOD (CD), Department of Mining Engineering, IIT (ISM) Dhanbad, welcomed and introduced the HCL team in a meeting with the faculty members from the Department of Mining Engineering, Department of Applied Geology, and Department of Mechanical Engineering.

Dr. S.K. Sinha discussed the mine-wise current status of working and associated challenges along with their plan to increase the production from the mines. He stressed upon the visit of IIT (ISM) Dhanbad expert team to jointly identify the key problems and detailed discussion on the existing problems at the site. He also expressed his intent to fund a large number of R&D projects aligned with their future expansion plans and mitigating the current challenges.

Farewell meet of Prof. S.C. Bhowmik

On 30 May 2025, the Department of Mining Engineering bid farewell to Prof. S. C. Bhowmik, upon successful completion of his tenure as Adjunct Faculty in the Department of Mining Engineering. The farewell was organized in the Conference Room of the Department, and it was attended by the faculty members, and technical and non-technical staff of the Department. Prof. D.P. Mishra, HOD, Department of Mining Engineering, IIT (ISM) Dhanbad, acknowledged the contributions of Prof. Bhowmik for the Department as a Rungta Chair Professor from 1 January 2019 to 31 December 2023 and Adjunct Faculty from 1 January 2024 to 31 May 2025. All the attendees also shared their fond memories with Prof. Bhowmik during the farewell meet. The meeting concluded with the felicitation of the Prof. Bhowmik by the HOD, Department of Mining Engineering.

भारतीय प्रौद्योगिकी संस्थान भारतीय खनि विद्यापीठ धनबाद
IIT ISM INDIAN INSTITUTE OF TECHNOLOGY INDIAN SCHOOL OF MINES DHANBAD
Legacy that Inspires the Future
DEPARTMENT OF MINING ENGINEERING

Farewell Ceremony of B.Tech and M.Tech Students

The Department of Mining Engineering at IIT(ISM) Dhanbad bid a heartfelt farewell to its graduating B.Tech and M.Tech students on 4 May 2025 in the GJLT Auditorium, marking the culmination of a significant chapter in the academic journey of the outgoing students. The event celebrated the achievements, camaraderie, and memories forged by the outgoing batch, while wishing them success in their future endeavors.

The ceremony commenced with a warm welcome by Prof. D.P. Mishra, HOD, Department of Mining Engineering followed by the talks of faculty members. Prof. Mishra emphasized on the importance of the skills and values acquired by the graduating students at IIT(ISM) Dhanbad, encouraging them to uphold the Department's reputation as they embark on their professional journey. He also highlighted the recent achievements, including the QS rankings and placement records, reinforcing the quality of the education imparted here.

The faculty members spoke about the Department's illustrious legacy since its establishment in 1926 and its ongoing commitment to excellence in mining education and research. Professors also shared words of encouragement, acknowledging the hard work, resilience, and contributions of the graduating students to the Department's vibrant academic and cultural environment.

Outgoing students shared their experiences, expressing gratitude for the guidance received and the lifelong friendships formed at IIT(ISM) Dhanbad. Their speeches were filled with nostalgia, humor, and hope for the future. A series of cultural performances by the students added a festive touch, celebrating the diverse talents of the Department.

Mementos and certificates were presented to the graduating students as token of appreciation and remembrance. The event also marked the felicitation of the student office bearers of SME IIT(ISM) Student Chapter for their contributions and dedicated efforts in organising different events under the banner of SME IIT(ISM) Student Chapter.

As the ceremony concluded, faculty members and juniors extended their best wishes to the outgoing batch, having confident that they would continue to excel and contribute to the mining sector and society at large. The event was a fitting tribute to the perseverance and spirit of the graduating students, who are now a part of the esteemed alumni network of IIT(ISM) Dhanbad.

The Department of Mining Engineering congratulated the Class of 2025 and wished them great success in their future endeavors.

भारतीय प्रौद्योगिकी संस्थान
भारतीय खनि विद्यापीठ
धनबाद
IIT ISM INDIAN INSTITUTE OF TECHNOLOGY INDIAN SCHOOL OF MINES DHANBAD
Legacy that Inspires the Future

DEPARTMENT OF
MINING ENGINEERING

digmin 2025

INTERNATIONAL CONFERENCE

"Digital Intelligence for Green Mining and Industrial Networks"

(DIGMIN-2025)

The Department of Mining Engineering, Indian Institute of Technology (Indian School of Mines), Dhanbad is proud to host the prestigious International Conference on Digital Intelligence for Green Mining and Industrial Networks (DIGMIN-2025) during 12-13 September 2025, organized as part of the centenary celebrations of IIT (ISM) Dhanbad. This two-day event will serve as a flagship forum for deliberations and collaboration in sustainable and intelligent mining technologies.

DIGMIN-2025 will bring together the distinguished academicians, researchers, industry professionals, policymakers, and sustainability leaders to explore the convergence of digitalization, automation, artificial intelligence, and green mining practices. The conference will showcase the cutting-edge developments in AI/ML for risk prediction, IoT-enabled mine automation, autonomous systems, and cyber-physical solutions for resource efficiency and environmental stewardship.

Key themes of the Conference include:

- **Smart Mining Infrastructure and Digital Foundations**
- **Robotics & Automation in Harsh Mining Environments**
- **Real-time Analytics and Edge AI for Mining Operations**
- **AI-Driven Intelligence for Critical Mineral Estimation**
- **Energy Optimization and Resilient Mining Systems**

DIGMIN-2025 promises an enriching experience with high-impact keynote addresses, technical paper sessions, industry exhibits, and policy roundtables, aiming to create actionable roadmaps for a digitally empowered and environmentally responsible mining future.

INTERNATIONAL CONFERENCE ON
"Digital Intelligence for Green Mining and Industrial Networks (DIGMIN-2025)"
September 12–13, 2025
GJLT Auditorium, IIT (ISM) Dhanbad

भारतीय प्रौद्योगिकी संस्थान धनबाद IIT ISM INDIAN INSTITUTE OF TECHNOLOGY INDIAN SCHOOL OF MINES DHANBAD

DEPARTMENT OF MINING ENGINEERING

Faculty Profile of the Department

Prof. V M S R Murthy
Professor (HAG)
On Deputation As Director IIEST 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. 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. 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

DEPARTMENT OF MINING ENGINEERING

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 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

2025 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
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

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
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

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	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
					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	24	25	26	27	28
29	30					

2025 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