

ROSHAN KUMAR



Assistant Professor, Department of Mining Engineering
BIT Sindri, Dhanbad (Department of Higher and Technical Education, Govt. of Jharkhand)
B.Tech., M.Tech. (Mining Engineering)
Pursuing PhD at IIT Kharagpur (Research domain: Rock Mechanics and Mines Safety)
First Class Mine Manager Certificate of Competency Holder (Coal)
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[Google Scholar Profile](#) [Linkedin Profile](#) [ResearchGate Profile](#) [Orchid iD](#)

Work Experience

Teaching Experience	Working as Assistant Professor at the Department of Mining Engineering, BIT Sindri, Dhanbad w.e.f. 16.04.2022 at present (4 years and 1 month).
Industrial Experience	Work Experience of 4 Years and 3 Months and 14 days at Central Coalfields Limited (A Subsidiary of Coal India Limited , A Public Sector Undertaking. Gained wide exposure to Mine Safety, Mine Operations and Management while working in two opencast (Parej East O/C Project & Kedla O/C Project) and an underground (Kedla U/G Project) coal mines.
Statutory Certificate	Holder of First-Class Mines Manager Certificate of Competency (Coal) (Unrestricted and Restricted) -It is the highest professional recognition to Mining Engineers given by the Directorate General of Mines Safety (DGMS) under the Ministry of Labour & Employment, Government of India. Certificate granted after successful completion of written and oral examination by DGMS in the year 2021(restricted to O/C) and 2022 (unrestricted).

Academics

Degree	College	University	Year (Passing)	CGPA (Scale of 10)
Ph.D.	IIT Kharagpur	IIT Kharagpur	(Pursuing)	8.56 (83.54%)
M.Tech.	IIT BHU, Varanasi	IIT BHU, Varanasi	2017	8.53 (85.30%)
B.Tech.	BIT Sindri, Dhanbad	Vinoba Bhave University	2014	7.96 (79.60% Scale of 100)

Class	School	Board	Year (Passing)	Score (%) (Scale of 100)
XII	Kendriya Vidyalaya, Namkum, Ranchi	C.B.S.E	2010	74.20
X	Kendriya Vidyalaya, Namkum, Ranchi	C.B.S.E	2008	89.40

Ph.D. Doing research in the domain of rock mechanics under the guidance of Dr. Abhiram Kumar Verma, Professor, IIT Kharagpur (Tentative Submission-Nov-Dec,2026)

M.Tech. Thesis: *Numerical Simulation of Water Seepage and Design of Safe Water Barrier Pillar for an Underground Coal Mine* under the guidance of Dr. G.S.P.Singh, Associate Professor, Indian IIT BHU, Varanasi

Publications

• Journal Publications

- Kumar, R.** and Verma, A.K. (2025). *Water Barrier Pillar Design for Safety in Underground Coal Mines: A Review*. *Mine Water and the Environment* (2025) 44:203-225. <https://doi.org/10.1007/s10230-025-01059-8>
- Baske A, Kumar A, **Kumar R**, Pandey A. *Artificial intelligence for mining safety: A Chatbot solution for Indian statutory provisions*. *Mining Technology: Transactions of the Institutions of Mining and Metallurgy*.

- **International Conferences**

1. **Kumar, R.** and Verma, A.K. *Design of Water Barrier Pillar for Safety in Underground Coal Mines*, ISRM International Symposium, Eurock 2025 - Expanding the Underground Space, Trondheim, Norway, 16-20 June (2025). ISBN 978-82-8208-079-8
2. Kashi, V.K., Sahu, A.R., Suman, B., **Kumar, R.** (2025). *Dust Suppression of Haul Road in Opencast Coal Mine Using Laboratory Synthesized Polymer*. In: Gorai, A.K., Ram, S., Bishwal, R.M., Bhowmik, S. (eds) Sustainable and Innovative Mining Practices. ICSIMP 2023. Springer Proceedings in Earth and Environmental Sciences. Springer, Cham. https://doi.org/10.1007/978-3-031-76614-5_4
3. Kashi, V.K., Sahu, A.R., **Kumar, R.** *Utilization of Fly-Ash in the Backfilling of Void in Underground Mines. Proceedings in Earth and Environmental Sciences*, 267–275 (2023). https://doi.org/10.1007/978-3-031-46966-4_21
4. Galav, A., **Kumar, R.**, Singh, G.S.P. and Sharma, S.K. *Numerical Simulation of Water Flow through a Protective Barrier in Underground Coal Mines*, In proceedings of 5th ISRM Young Scholars Symposium on Rock Mechanics and International Symposium on Rock Engineering for Innovative Future, Okinawa. December 1-4, 2019. Paper Number: ISRM-YSRM-2019-023 International Conference paper in ISRM2019 Specialized Conference titled: December 2019. ISBN: 978-4-907430-04-7. <https://onepetro.org/ISRMYS/abstract/YSRM19/All-YSRM19/445834>

Areas of Specialization

- Rock Mechanics and Numerical Modelling
- Mine Safety, Mine Operations and Management
- Internet of Things & Application of AI and ML in Mining
- Drilling and Blasting

Software Proficiency

- FLAC 2D and FLAC 3D
- Rocscience Modules (RS2)
- 3DEC
- Basic Programming via C, C++ and Python

Professional Body Membership

- International Society for Rock Mechanics and Rock Engineering (ISRM, India)
- The Institution of Engineers

Positions of Responsibility at BIT Sindri

- **Prof.In-Charge**, Tour, Training and Placement, Department of Mining Engineering, BIT Sindri, Dhanbad
- **Co-ordinator**, Institute Innovation Council 8.0, BIT Sindri
- **Mentor**, Startups and Texmin projects developed by students of Mining Engineering, BIT Sindri, Dhanbad
- **Member**, Anti-Ragging Cell, BIT Sindri, Dhanbad
- **Member**, Admission of 1st year in BIT Sindri, Dhanbad
- **Member**, NBA & NAAC accreditation process for Student Performance Module, Department of Mining Engineering, BIT Sindri

Academic Delivery

Course

Name of the Subjects Taught

B.Tech.	Basic Rock Mechanics (Theory & Practical), Applied Rock Mechanics, Mine Legislation and Safety Engineering, Internet of Things (Theory & Practical), Mine design Lab-II, Numerical Modelling Lab, Digital Mining Technology Lab and Project-I and Project -II
M.Tech.	Environment Acts, Law and Regulations, Climate Change and Sustainable Development

M.Tech. Guided (Completed/In-progress)

S.No.	Name of the student	Year of graduation	Title of Thesis
1.	Subhajit Yadav	In-progress	Utilization of underground goafs for carbon sequestration in underground coal mines
2.	Ashutosh Kumar	In-progress	Study on the Impact of Industrial Wastewater discharge on the Surface Water Quality

Lab Establishment

- Established "Mining Innovation and Research Lab" in the Department of Mining Engineering, BIT Sindri

Achievements

- Secured All India Rank, 67 at CIL MT- Mining-Exam-2017, scoring 150/200 marks in the written exam.
- Secured 1st Position in School (School Topper) in 10th CBSE Exam-2008
- Holder of First-Class Mines Manager Certificate of Competency (Coal) (Unrestricted). Cracked this exam twice.

Details of Short-term Courses and Seminars

S.No.	Courses/Seminar/Workshop/Conclave	Responsibility	Place/Date
1.	Advances in Mining Engineering	Co-ordinator	BIT Sindri, Dhanbad, November, 2024
2.	Golden Jubilee Mining Innovation Conclave	Co-convenor	BIT Sindri, Dhanbad, November, 2025

Mentorship roles (Startups/Projects)

S.No.	Name of the student	Project/Startup	Detail of the project/Startup	Duration
1.	Kunal Kr. Sonkar and Mohit Kumar	Khwab Publication	Startup based on Publication house	24 Months
2.	Rajnish Kumar Singh	TEXMIN fellowship	AI based Rockfall/Landslide Prediction for Open-Pit Mines	10 months
3.	Rakesh Pandey	TEXMIN fellowship	Early detection and prevention of spontaneous combustion of coal using UAVs	10 months

Nature of Work and Duties in Central Coalfields Limited (CCL), A subsidiary of Coal India Limited (Jan-2018 to April-2022)

- Blasting Officer:** As a statutory role, I worked as a Blasting Officer, looked after daily mine planning, and controlled blasting operations. I looked after the procurement, handling, and use of explosives and accessories in Opencast mines. Initiated and implemented the use of Electronic Detonators for the first time in the Parej East O/C Project.
- Safety Officer:** As a statutory role, I worked as a safety officer in underground coal mines and performed the duties as per Regulation 44 of the Coal Mines Regulation 2017. I additionally looked after the procurement of safety equipment and accessories to maintain safety and compliance with various safety provisions and regulations. I worked on preparing SOPs, SMPs, and SCAMP, implementing them in mines, and conducting Pit Safety Meetings

as secretary. Organised Annual Safety Week, safety talks, mock drills, safety audits and safety drives in the mines. Active participation and representation in Bi-partite and Tri-partite safety meetings.

- **Nodal Officer, Environment & Forest:** I looked after the work of Environment Clearance and Forest Clearance activities of the underground and opencast project for future expansion. I coordinated and conducted public hearings in the presence of the Jharkhand State Pollution Control Board. I worked on the Preparation and implementation of the mine closure plan. Worked on Forest and environment clearance.
- **Assistant Dispatch Officer:** I looked at and coordinated the work of coal dispatch for the opencast and underground mines to the crusher, washery, power plants, and road sales. Submission of monthly and annual returns of royalty and other taxes.
- **Nodal Officer, Land & Revenue:** Looked after the R & R-related work of tenants and leasehold area litigations. Preparation of land schedule and future project expansion and planning. Looked after the work of the employment of PAP.
- **Shift Incharge:** Worked in shifts, both in Opencast and Underground Mines. Worked on Coal and Overburden Production. Monitoring, planning, scheduling, and supervising the work of men and machines. Met the annual coal production target of the Kedla U/G Project, CCL.

Overall, I have work experience in two opencast mines and one underground mine of Central Coalfields Limited (CCL) in different capacities and responsibilities. I have also represented Hazaribagh Area, CCL as Captain in the First Aid Competition at Mine Rescue Station, Ramgarh, CCL and secured 1st position in the First Aid theory segment. I also hold a medallion certificate in First Aid.

Additional Information

- I have completed the Laboratory Quality Management Systems and Internal Auditing training program. I am a certified internal auditor, which is valuable for NABL accreditation.
- I have a completion certificate from the AICTE-approved National Initiative for Technical Teacher Training (NITTT) 8-module MOOC Course.
- I have served as a session chair in the 2024 IEEE flagship International BIT Conference (BITCON-24), with the theme "Next Generation Applications in Green Technology."

I hereby declare that the credentials provided herewith are genuine and to the best of my knowledge and belief.

Date: 15.05.2026

Roshan Kumar