



Dr. Mittapally Sathish Kumar

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Personal Summary

A dynamic mining professional with over 20 years of experience, including a pivotal role at Singareni Collieries Company Limited and University College of Engineering, Osmania University, currently holding the position of Professor of Practice at Osmania University. I completed my Ph.D. in 2024, achieving this significant milestone within just four years while managing it alongside my professional responsibilities. Known for my ability to excel at multitasking.

I am deeply committed to advancing academic and industry standards. My passion for teaching and practical industry knowledge enables me to bridge the gap between academia and real-world applications effectively.

Expertise

- Mine Planning
- Rock Slope Engineering
- Internet of Things and Digitalization applications in Mining
- Rock Mechanics
- Slope Stability Analysis
- Rock Blasting
- Ground Control
- Project management
- Carlson
- Surpac
- Deswik
- Flac 2D/Flacslope
- RocScience Slide & Phase2
- Ansys
- Ventsim
- AutoCAD & MS Office
- A Project work on “Reserve Estimation, Design of Ultimate pit slope and Stability Evaluation for an Opencast coal mine- A Case Study” at SCCL mines completed **using Carlson software - 2025.**
- A Project work on “Optimisation of reserves and open pit design **using Deswik software** at SCCL mines” was completed in **2026.**
- A Project work on “Ventilation Planning and Design for a Deep Mechanized Longwall Coal Mine - A Case Study **using Ventsim software** at Adriyala Longwall Project of SCCL” was completed in **2026.**

Experience

Professor of Practice, Osmania University (09/2020 – Current)

Academic Contributions

- Taught theory courses in **Mine Planning & Design, Rock Slope Engineering, Rock Mechanics and Ground Control** for B.E. and M.E. students.
- Conducted lab sessions in **Computer Applications in Mining, Rock Mechanics, and Mine Environmental Engineering** for both PG and UG programs.

- Played a key role in developing the **Department of Mining Engineering** in the institution.

Infrastructure & Lab Development

- Set up computer laboratory with advanced mining software: **Carlson, ANSYS, RocScience (Slide, Phase2/RS2), FLAC2D.**
- Established laboratories for **Rock Mechanics, Mine Environment, and Mineral Processing** with support from SCCL and the college administration.

Industry Collaboration and Sponsorships

- Secured sponsorships for departmental infrastructure, a new building, and collaborations with Coal India Ltd., SCCL, and NTPC to utilise CSR funds.

Administrative And Examination Duties

- Working as an overall in-charge for the Department of Mining Engineering to run smoothly and effectively.
- Facilitated smooth conduct of state-level entrance exams (TGPGET and TGET) for mining engineering students.

Singareni Collieries Company Limited (2003 - 2020)

Deputy Manager (2014 – 2020)

- Positioned in **Corporate Planning and Projects department**, for planning and monitoring of mechanized Underground Mines like Adriyala Longwall Project, GDK 11 Incline, etc.
- Positioned in **Information & Projects Management department**, worked on SAP- PS module for monitoring.
- Ongoing projects review through the MoSPI website, and preparation of MoUs and ratings relating to Performance-Related Pay for executives.

Deputy Manager (2012 – 2014)

- Worked as incharge for preparatory works for Longwall Panel commissioning at **Adriyala longwall project** and laying of concrete pavement in underground roadways for a length of 2.2 Km first time in India, installation of high capacity CODCO belts conveyors and foundations.

Deputy Manager (2010 – 2012)

- Worked as in-charge for the preparation of depillaring panels with stowing with a double lift system at **GDK No. 1 & 3 Incline.**
- Worked as in charge for production for three depillaring districts and one development district at **GDK No. 2 & 2A Incline.**

Graduate Mining Engineer and Under Manager (2006 – 2010)

- Worked as a Graduate trainee in the installation of Hydraulic roof bolting machines in combination with LHD and SDL technology and strata controlling & monitoring at **GDK No. 2 & 2A Incline.**
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Junior Mining Engineer Trainee, Singareni Collieries Company Limited (2005 – 2006)

- Worked as a Junior Mining Engineering Trainee at **GDK 9 Incline** in depillaring with LHDs in caving panels wherein concentrated on strata management, induced blasting in Underground Coal Mine Working.

Graduate Trainee, Singareni Collieries Company Limited and Santhonachi Upri Iron Mine, Goa (2003 – 2005)

- Worked as a Graduate Trainee in Indian Explosives Limited (IEL) at GDK OC-1, SCCL, in charge of explosive supply, drilling, and blasting operations.
- Worked as a Graduate Trainee in Santhonachi Upri Mine (Iron Ore Mine) at Goa, as incharge for preparation and maintenance of haul roads, ramps, ripping technology adopted to avoid the blasting operations as per the statutory permission conditions.

Education

National Institute of Technology, Surathkal, 11/2024

Ph.D.: Mining Engineering

- Thesis Title: "Advanced Slope Monitoring System to Develop Trigger Action Response Plan (TARP) in Opencast Coal Mines Using Internet of Things (IoT)."
- CGPA: 9.75

VNIT, Nagpur, 01/2017

M.Tech.: Mining Engineering

- Thesis Title: "Effect of Blasting on Waste Dump Slope Stability in Opencast Coal Mine"
- CGPA: 9.68

University College of Engg, Kakatiya University, Kothagudem, 03/2003

B.Tech: Mining Engineering

- Percentage: 78.28%

Govt. Polytechnic, Kothagudem, 03/1999

Diploma: Mining Engineering

- Percentage: 74.30%

10th Class, ZPSS, Kamalapur, Karimnagar, 03/1995

- Percentage: 79.83%

Research Contributions and Scientific Studies

M.E Projects guided at the Department of Mining Engineering @ UCEOU

- Reserve Estimation, Design of Ultimate pit slope and Stability Evaluation for an Opencast coal mine - A Case Study (2026).
- Ventilation Planning and Design for a Deep Mechanised Longwall Coal Mine – A Case Study (2026).
- Study of Impacts and Apprehended Dangers on Workings due to Extension of Opencast mine Workings by Amalgamation of part workings of Underground mine (2025).
- Optimisation of Ultimate Pit Slope and Stripping Ratio in Opencast Mine Planning - A Case Study (2024).

- Analysis of the slope deformation in opencast coal mines using numerical modelling methods (2023).
- Real-Time Slope Monitoring of Pit Slope Stability by using Internet of Things (IoT) in Opencast Coal Mines (2022).
- Analysis of Stress Distribution on the Dragline Bucket using Finite Element Method (2022).
- Analysis of Pit Slope Stability using Limit Equilibrium Method, Finite Element Method and Finite Difference Method (2022).
- Evaluation of a Dump Slope Stability of a Coal Mine using Limit Equilibrium Methods (2021).

Contributed as Co-Principal Investigator (Co-PI) in the following projects:

- Conducting a Scientific Study for preparation of Ventilation Plan for Gopinathpur Mine of ECL - M/s Vensar Constructions Co. Ltd., **(Ongoing)**.
- Preparation of Strata Control and Monitoring Plan (SCAMP) for Haulage and Belt Incline tunnels and UG workings at Gopinathpur Coal Mine, Nirsa, Dhanbad Area -**2026**.
- Design of Deep Hole Drilling and Controlled Blasting with 110 and 160 mm drill holes in 6.0 to 9.0 m height benches up to a distance of 100 m from the nearest residential structures of the neighbouring villages at Kerendari Coal Mine of NTPC- **2025**.
- Determination of slope stability for the safe working of open excavation of the incline No. 2 works of the Shyamsundarpur Colliery in Bankola Area, Eastern Coal Fields Limited (ECL)-**2024**.
- Determination of slope stability, Design of the benches and overall slope angle to be maintained for the safe working of Midwest Granite Quarry, Kodad Mine near public road-**2024**.
- Capacity analysis of a 350 TPH crusher and discharge conveyor at Gudipadu Limestone Mine -**2022**.

Symposia and Events

- Organised Three-day workshop on “Mine Designing by using Deswik Software”, provided by Deswik Solutions, Australia at the Department of Mining Engineering, University College of Engineering (A), Osmania University, Hyderabad, from 16th to 18th March 2026.
- Organised Five-day workshop on “Carlson for Mine Planning and Design”, provided by Shotam instruments Private Ltd, New Delhi at the Department of Mining Engineering, University College of Engineering (A), Osmania University, Hyderabad, from 7th to 11th April 2025.
- Successfully organized the national-level student technical symposiums, IGNITE-2023, IGNITE-2024, and IGNITE-2025 showcasing innovative student models and industry expert talks.
- Organized national seminars on IoT and Artificial Intelligence applications in mining during the year 2023.
- Organized one-day workshop on hands-on practice for BE students and faculty on “Study and Monitoring of blast-induced vibrations in opencast mines” on 21st September 2023, in coordination with Uttam Blasttech Pvt. Ltd.
- Organized the International Symposium on 'Recent Trends in Mineral Industry 2022,' featuring 48 high-quality technical papers.

- Organized a lecture series on CM methods and underground Coal Mine Mechanization during 20th December, 2022 in coordination with National Head, Joy Global, Komatsu.
- Organized a conference on the Application of IoT in the Mining Industry during September 2021.

Research Ids

- Vidwan Id: <https://vidwan.inflibnet.ac.in/profile/590861>
- Google Scholar: https://scholar.google.com/citations?view_op=list_works&hl=en&user=_Uxmr3UAAAAJ
- ORCID: <https://orcid.org/0000-0003-2179-2687>
<https://www.scopus.com/authid/detail.uri?authorId=58104834300>
- Research Gate: <https://www.researchgate.net/profile/Mittapally-Kumar/research>
- Web of Science: <https://www.webofscience.com/wos/author/record/LXV-9042-2024>
- LinkedIn: <https://www.linkedin.com/in/dr-mittapally-sathish-kumar-9a792a60>.

Publications

More than 15 papers have been published in international and national journals, as well as more than 10 presentations in international and national journal conferences, some of which are listed below.

International /National Journals

- Mittapally, S.K., Kairamkonda, H., Tripathi, A.K. *et al.* ‘Optimizing slope stability in opencast mines using geometric and geomechanical parameters through a numerical modeling approach’. *Innov. Infrastruct. Solut.* 11, 393 (2026) (SCI Indexed Q2 Journal). <https://doi.org/10.1007/s41062-026-02799-4>.
- Kumar, M. S., Raj Kumar, M., Vishal, A., Siddartha, YSR & Chandar, K.R (2026) ‘IoT based Slope Monitoring in Opencast Coal Mines’, *International Journal of Mining and Mineral Engineering*, Vol. xx, xxx-xxx (Accepted on 24th March 2026). **DoI:** <https://doi.org/10.1504/IJMME.2027.10078596> (SCI Indexed Q3 Journal).
- Sathish Kumar Mittapally & Ram Chandar Karra (2023), Functions and performance of sensors for slope monitoring in opencast coal mines – laboratory experimentation, *Petroleum Science and Technology*. (SCI - Q3 Journal). DoI: <https://doi.org/10.1080/10916466.2023.2175858>.
- Kumar, M. S., & Chandar, K.R (2023) Development of an Alert System in Slope Monitoring using Wireless Sensor Networks and Cloud Computing Technique – A Laboratory Experimentation, *International Journal of Mining and Mineral Engineering*, Vol. 14 (2), Pp 205-221. (SCI - Q3 Journal). DoI: <https://doi.org/10.1504/IJMME.2023.133652>.

- Kumar, M. S., & Karra, R. C. (2023). Applications of Wireless Sensor Network for Displacement Monitoring in Opencast Coal Mine Slopes. *Journal of Mines, Metals and Fuels*, 71(9), Pp 1346–1358. (SCI – Q4 Journal). DoI: <https://doi.org/10.18311/jmmf/2023/32032>.
- Sathish Kumar Mittapally, A. Akhila Sahithi1, Kairamkonda Harish. (2023), Investigation of Stress Distribution on Dragline Bucket in Opencast Coal Mines, *Advances in Engineering Research*. In Second International Conference on Emerging Trends in Engineering, Pp. 1367-1376, Atlantis Press. (Scopus). DoI: https://doi.org/10.2991/978-94-6463-252-1_136.
- Mittapally, S. K., & Marichamy, R. K. (2023), Wireless Sensor Networks and Real-Time Slope Monitoring: A Brief Review. *Advances in Engineering Research*. In Second International Conference on Emerging Trends in Engineering, Pp. 1307-1317, Atlantis Press. (Scopus). DoI: https://doi.org/10.2991/978-94-6463-252-1_131.
- Sathish Kumar Mittapally, E. Srinivas, I. Satyanarayana, K. Purushotham, (2023), Effect of Blast Vibrations on Dump Slope Stability in Opencast Coal Mines *Advances in Engineering Research*. In Second International Conference on Emerging Trends in Engineering, Pp. 1298-1306, Atlantis Press. (Scopus). DoI: https://doi.org/10.2991/978-94-6463-252-1_130.
- Sathish Kumar Mittapally & Ram Chandar Karra (2024), IoT based Slope Monitoring Systems in Opencast Mines, *International Conference on Mining for a Greener Future: Technological Developments and Sustainable Practices (ICMFGF-2024)*, 16-17, February, Pp-20, NITK, Surathkal, Karnataka.
- Sathish Kumar Mittapally & Ram Chandar Karra (2023), Real-time Slope Monitoring System based on Cloud Computing for Opencast Coal Mines, *Proceedings of 1st Srilankan Rock Mechanics and Engineering Society (SLRMES)*, Srilanka, 3-7, December, 2023, Pp 55-56. (Sponsored by International Society for Rock Mechanics (ISRM)).
- Mittapally Sathish Kumar, Rahul Kiran Reddy, Kuchibhotla Srinivas (2025), Critical Parameters Influencing Opencast Mine Design - A Review. *International Journal of Innovative Science and Research Technology (IJISRT)* IJISRT25OCT943, vol.10, issue.10, pp. 1580-1595. DOI: <https://doi.org/10.38124/ijisrt/25oct943> (Research Gate approved).
- Madhu Guguloth, Satish Kumar Mittapally, Ajay Eru, Srinivas Kuchibhotla. ‘Integrated application of agriculture waste Biochar and Rhizobium for the restoration of acidic mine overburden soil: A biogeochemical approach’. *International Journal of Geography, Geology and Environment*, 2026;8(5):95-102. (Research Gate approved). DOI: <https://doi.org/10.22271/27067483.2026.v8.i5b.75>.

International /National Conferences

- Sathish Kumar Mittapally and Ram Chandar Karra ‘Real-Time Slope Monitoring in Opencast Coal Mines Using Wireless Sensor Network and Cloud-Based System’, *International Symposium on Advances in Mining, Environment & Tunneling (ISAMET-26)* during 12th to 14th

February 2026, VNIT Nagapur, India.

- Sathish Kumar, M., Reddy, R. K. R., Srikanth, V., Abhiram, K., & Reddy, K. S. (2025). Reserve estimation, optimisation of pit design and assessing the impact of catch bench intervals on overall slope angle and stripping ratio in opencast coal mine – A case study. Proceedings of GREEN-2025, IIT Kharagpur in collaboration with Curtin University, Australia.
- Sathish Kumar Mittapally & Ravi Teja (2024), “Slope Monitoring Systems in Opencast Mines – A Brief Review” International Conference on Safe and Sustainable Mining Technologies (IConSSMT-2024), AKS University, Satna, Madhya Pradesh, 19-21, February, 2024.
- Sathish Kumar Mittapally & Ram Chandar Karra (2023), “Real-time Slope Monitoring System based on Cloud Computing for Opencast Coal Mines.” Proceedings of 1st Srilankan Rock Mechanics and Engineering Society (SLRMES), Srilanka, 3-7, December, 2023, 55-56. (Sponsored by International Society for Rock Mechanics (ISRM)).

**Certifications/
Achievements/
Awards/Honors/ Fellows**

- **First Class Mine Manager certificate** of competency Coal (Unrestricted), 2010
- **Second Class Mine Manager certificate** of competency Coal (Unrestricted), 2008
- **Chain Training:** Training on Fully Mechanized Mining Technology and Equipment" in China for a period of 30 days from November 7 to December 6, 2011 organized by China Coal Overseas Development Co. Ltd. (CODCO) and Xuzhou Coal Mining Group Corp. Ltd. (XMC).
- **Ministry of Statistics & Programme Implementation (MoSPI), GoI:** Completed a one-week program on "Project Planning and Management" conducted at the National Statistical Systems Training Academy (NSSTA), Greater NOIDA, from November 17th to 21st 2014.
- **Institute of Public Enterprises, Osmania University, Hyderabad:** Completed a 9-day program on project appraisal and preparation of a detailed project report from the 8th to the 16th of 2016 All over state 1st rank holder in ECET 1999 (Mining)—Prathibha award winner from State Government.
- **State 2nd Rank** during B.Tech throughout the Kakatiya University (1999-2003).
- **1st rank** holder in ECET 1999 (Mining) in all over the state - Prathibha award winner from State Government.
- Fellow member of the Mining Engineers Association of India (**FMEAI**).
- **Council Member** for the Term Periods 2021-23 and 2023-25 in the Mining Engineers Association of India (MEAI).
- **Life member** of the Institute of Engineers India (MIE).
- **Life member** of The Mining, Geological & Metallurgical Institute of India (MGMI).
- **Life member** of the World Research Association (WRA).