Dr. Sandi Kumar Reddy
Associate Professor

Contact Information:

Department of Mining Engineering.
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Educational Qualifications:

2010 –2015	PhD in Mining Engineering Institute: National Institute of Technology Karnataka, Surathkal
2005 - 2007	Master's degree in Mine Planning Institute: Institute of Technology Banaras Hindu University (IT-BHU)
2000 - 2004	Bachelor's Degree in Mining Engineering Institute: University College of Engineering

Teaching/Research/Industry Experience:

October 2023– Continue	Associate Professor in Department of Mining Engineering Institute: National Institute of Technology Karnataka, Surathkal
September 2019 – October 2023	Assistant Professor in Department of Mining Engineering Institute: National Institute of Technology Karnataka, Surathkal
December 2017 – September 2019	Scientist in Geomechanics & Ground Control Department Institute: National Institute of Rock Mechanics (NIRM)
December 2014 – November 2017	Scientist in Slope Stability Cell Institute: National Institute of Rock Mechanics (NIRM)
October 2008 – November 2014	Scientist in Mine Design Department Institute: National Institute of Rock Mechanics (NIRM)
October 2006 – September 2008	Jr. Manager Organization: South West Mining Limited (JSW Group)
April 2004 – March 2005	PGPT Organization: Western Coal Fields Limited (CIL Subsidiary)

Research Areas:

- Mine Planning
- Rock Engineering
- Slope Stability
- Open pit mining
- Underground Mining
- Blasting
- GIS & Remote sensing
- Geostatistics
- Internet of Things (IoT)

Membership of Professional Bodies:

Life Member (LM-2930)	Mining Engineers Association of India (MEAI)
Life member (LM-2231)	Indian Society for Rock Mechanics and Tunnelling Technology (ISRMTT)
Member (M-1529484)	Institution of Engineers (India)
Member (410/IND/2021-2040)	International Society for Rock Mechanics and Rock Engineering (India)
Life Member (867)	Society of Geoscientists and Allied Technologies (SGAT)
Life Member (10855-LM)	The Mining, Geological & Metallurgical Institute of India

Awards/Honors/Achievements:

- Dr. Rajendra Prasad Gold Medal for best paper titled "Stress distribution on blasting gallery pillar due to goaf formation during extraction", presented at Indian Engineering Congress held at Chennai, Dec. 21, 2017 (Co-author: Dr. V R Sastry).
- "Best Researcher award" for best paper titled 'Monitoring the movement of slopes in opencast mines', presented at International Conference on Advanced Engineering and Information Technology, 7-9 December, 2017, Linton University College, Mantin, Malaysia.
- Second Class Coal Mine Manager (Un-Restricted) Certificate of Competency of the Govt. of India in 2005.
- Second Class Metal Mine Manager (Restricted) Certificate of Competency of the Govt. of India in 2007.
- Best paper award for'*Stability Assessment and Design of Open Pit Slopes of Limestone Mines in India'*, 4thInternational conference on Geology and Earth Sciences (ICGES 2023)' 15 -17 June 2023, Bangkok, Thailand.

Supervision of students:

PhD: 2 + 7 (Ongoing)
MTech (R) :1
BTech: 40

1. Design and Development of Real Time Environmental Parameters Monitoring System Underground Mining using lnternet of Things and Machine Learning, Anil S Naik (217MN001),
2. Utilization of gold ore tailings as a partial replacement to the fine aggregates in the production of Geopolymer concrete with recycled coarse aggregates, Eshwarayya BL (217MN003)
3. Investigation on estimation and prediction of resistivity of rocks based on physico-mechanical properties of rocks, Varalakshmi Pudi (217MN504).
4. Development of advanced wearable IoT systems for enhanced safety and efficiency of opencast coal miners performance , Shashikanth (217MN504)
5. Optimization of distance between overburden dump and crest in opencast coal mines, Venkateshwarlu (217MN505).
6. Pit slope stability assessment under different hydrogeological characteristics of opencast mines, Rammohan Perumalla (207MN003).
7. Seismic performance of underground structures design, Abhish MS (227CV001).
8. Application of Remote sensing technology in Opencast mine environmental parameters monitoring, Hiranmayi Neredukomma. (08MN501)
9. Environmental Impact Assessment of Iron Ore Mines in Goan Region, Narayana Prasad (247MN501).

Journal Publications:22

1. Kumar Reddy, S. and Sastry, V, R. (2012). Induced Stresses in Blasting Gallery Panel during Depillaring based on Field Instrumentation – A Case Study, International Journal of Earth Sciences and Engineering, Volume 05 No 06 (01), 1820-1827.
2. Kumar Reddy, S. and Nagaraj, C. (2012). Longwall Goaf monitoring using Deep Hole Extensometers, International Journal of Earth Sciences and Engineering, Volume 05 No 05 (01), 1402-1405.
3. Kumar Reddy. S., and Sastry. V.R., (2013). Strata monitoring studies in Blasting Gallery panel during depillaring based on field instrumentation, Indian National Group of International Society for Rock Mechanics (ISRM India) Journal**,** Volume 02 No.1, 25-31.
4. Kumar Reddy. S., and Sastry. V.R., (2013). Gallery monitoring in Blasting Gallery panel during depillaring - a case study, Journal of Mines, Metals & Fuels, Volume 61 No 7 & 8, 257-260.
5. Kumar Reddy. S., and Sastry. V.R., (2016). Stress distribution on blasting gallery barrier pillar due to goaf formation during extraction, Journal of Institution of Engineers Limited (India), Series D, Volume 97, No. 2, 205-213.
6. Kumar Reddy, S., James Paul., and Paul Prasanna Kumar. (2017). Application of slope stability radar in an opencast mine, Journal of Mining Engineers Association of India, Volume 19, No. 5, 10-13.

7. Kumar Reddy, S and Rajan Babu A. 2018. Slope stability studies in open pit mines – A case study, Indian National Group of International Society for Rock Mechanics (ISRM India) Journal, Volume 07 No.2, 36-40.
8. Kumar Reddy, S, RajanBabu A and Venkatesh,H.S. 2018. Highwall Slope Stability Assessment of Open Pit Coal Mine- A Case Study, Journal of Engineering Geology, Volume XLIII, No. 1 & 2, 132-141.
9. Kumar Reddy. S. Anil S Naik& Mandela Govindaraj(2022). Internet of Things based Data acquisition system for monitoring air quality in underground mines, Journal of Mines, Metals & Fuels, Volume 70 No 12A, 21-27.*DOI: 10.18311/jmmf/2022/29942*
10. Sandi Kumar Reddy, Mandela Govindaraj&RammohanPerumulla, (2022). A critical review of FBG sensor for pore water pressure measurements, Journal of Mines, Metals &Fuels, Volume 70 No 12A, 137-142.*DOI: 10.18311/jmmf/2022/29942***(Q-4 Journal)**
11. Sandi Kumar Reddy (2023). Stability assessment and optimal excavated design of a rock slope in an opencast limestone mine, Journal of Mines, Metals &Fuels,,Volume 71 No 2, 141-148.https://doi.org/10.18311/jmmf/2023/32520**(Q-4 Journal)**
12. Sandi Kumar Reddy (2023). Monitoring and Prediction of Slope Failure Instability in a Limestone Mine, Journal of Mines, Metals & Fuels, Volume 71 No 2, 163-170.https://doi.org/10.18311/jmmf/2023/31743**(Q-4 Journal)**
13. Sandi Kumar Reddy (2023). Analysis of Faults' Effect on the Highwall Stability of Medapalli Open Pit Coal Mine, Journal of Geotechnical and Geological Engineering, 41:2969–2986.https://doi.org/10.1007/s10706-023-02440-6**(Q-1 Journal)**
14. Eshwarayya B L, MangalpadyAruna, Sandi Kumar Reddy &Anil Sagar S (2023). Study on Physico-Mechanical Properties and Characterization of Gold Ore Tailings and Utilization in Manufacturing of Geopolymer Concrete Along with Class F Fly Ash and Recycled Coarse Aggregates, Journal of Hazardous, Toxic, and Radioactive Waste. Vol. 27, No. 4, pp 28-37.*DOI: 10.1061/JHTRBP/HZENG-1248* **(Q-2 Journal)**
15. Eshwarayya B L, MangalpadyAruna, Sandi Kumar Reddy &Anil SagarS (2023).Development of Regression Model and Optimization of Mechanical Properties of GeopolymerConcrete Prepared Using Gold Ore Tailings, Journal of Hazardous, Toxic, and Radioactive Waste *DOI:* 10.1061/*JHTRBP/HZENG-1259.***(Q-2 Journal).**
16. Eshwarayya B L, Mangalpady Aruna & Sandi Kumar Reddy (2023). Geopolymer Concrete Preparation Using Gold Ore Tailings and Cost Comparison with Conventional Concrete. http://dx.doi.org/10.2139/ssrn.4653724
17. Sandi Kumar Reddy (2023). *Stability Assessment and Design of Open Pit Slopes of Limestone Mines in India*, International Journal of Geology and Earth Sciences Vol. 9, No. 2, pp 28-37.DOI:10.18178/ijges
18. SandiKumar Reddy. Anil S Naik& Mandela Govindaraj (2023).Development of a reliable Wireless Communication System to Monitor Environmental Parameters from various positions of Underground Mines to the Surface using ZigBee Modules, Journal of The Institution of Engineers (India): Series D .Vol. 105, pp 359-383. https://doi.org/10.1007/s40033-023-00486-7 **(Q-2 Journal)**
19. Sandi Kumar Reddy. Anil S Naik & Mandela Govindaraj (2023).Development of a Novel Real-Time Environmental Parameters Monitoring System Based on the Internet of Things with LoRa Modules in Underground Mines. Wireless Personal Communications. Vol 133: 1517 – 1546.https://doi.org/10.1007/s11277-023-10827-0.
20. Eshwarayya B L, Mangalpady Aruna & Sandi Kumar Reddy (2024). Durability Characteristics of Geopolymer Concrete Produced Using Gold Ore Tailings Along with Recycled Coarse Aggregates. Journal of Research square. *DOI:* https://doi.org/10.21203/rs.3.rs-3850399/v1.

21. Anil S Naik, Sandi Kumar Reddy & Mandela Govindaraj (2024).Real-Time Environmental Parameters Monitoring System Using IoT-Based LoRa 868-MHz Wireless Communication Technology in Underground Mines. IEEE Access, Vol 12: 7430 – 7455. DOI: 10.1109/ACCESS.2024.3350429
22. Anil S Naik, Sandi Kumar Reddy& Mandela Govindaraj (2024). A Systematic Review on Implementation of Internet of Things based System in Underground Mines to Monitor Environmental Parameters, Journal of The Institution of Engineers (India): Series D.Vol. 105, pp 1273-1289. https://doi.org/10.1007/s40033-023-00541-3 **(Q-2 Journal).**

Conference/Seminar Publications:58

1. Kumar Reddy, S. and Nagaraj, C. (2011). Development and Application of Deep Borehole Extensometers for Monitoring the Caving Behavior in Longwall Workings, International Conference on Underground Space Technology, pp. cm 12-6.
2. Kumar Reddy, S. and Sastry, V, R. (2012).Strata monitoring studies during extraction of Thick Seams by Blasting Gallery Method-A Case Study, World Conference on Applied Science and Engineering Technology, pp. 60-68.
3. Kumar Reddy. S. (2012).Coal as energy – Problems and issues related to mining industry, International Conference on Energy and Environment, 01-04th December 2012, Hyderabad.
4. Kumar Reddy, S. and Sastry, V, R. (2012). Strata monitoring studies with Convergence Stations in Galleries of Blasting Gallery Panel during Depillaring – A Case Study, Seminar on Ground Control and Improvement organized by Central board of irrigation and power (CBIP). 20-21 Sep, 2012, New Delhi.
5. Kumar Reddy. S, Sastry. V.R., and Ram Chandar. K., (2013). Induced blasting practice for hard roof management in Blasting Gallery method- A Case study, National seminar on Explosives & Blasting Techniques for Mining, Quarrying & Infrastructure Industry (EBTMQI), 27-28 September, 2013, Surathkal.
6. Kumar Reddy. S., and Sastry. V.R., (2013). Gallery supporting and monitoring in Blasting Gallery panel during depillaring – A Case study, international conference on Developments in best practices in surface and underground mining and innovative developments in mining machinery. 28-30 January 2013, Kolkata**.**
7. Kumar Reddy. S. (2013). Mass production technology in underground coal mines of sccl – An emerging trend, 2nd World Conference on Applied Science and Engineering Technology, 8-9 March 2013, Hyderabad.
8. Kumar Reddy. S, Sastry. V.R., and Nair Roshan., (2014). Assessment of Mining Induced Stress with Numerical Modelling during Depillaring of Underground Coal Pillars with Blasting Gallery Method, National seminar on Innovative Practices in Rock Mechanics (IPRM), 6-7 February, 2014, Bengaluru.
9. S. Kumar Reddy, (2014). Sustainable Development of PulivendulaBaryte Deposit Adopting Suitable Excavation Method, National seminar on Sustainable Development in Mineral & Earth Resources (SDMinER), 21-22 June, 2014, New Delhi.
10. Kumar Reddy, S and Rajan Babu A. (2016). Stability analysis of an open pit slope in a Chromite mine, Proceedings of International conference on Recent Advances in Rock Engineering, 16-18 Nov, 2016, Bangalore. pp 470-473.
11. Kumar Reddy, S and Rajan Babu A. (2016). Stability analysis of a waste dump in Chromite mine: Existing state and planned heightening, Proceedings of 3rd International conference on Earth Sciences and Engineering, 17-18 June, 2016, Coimbatore.
12. Kumar Reddy, S and Rajan Babu A. (2016). Cavability Studies of Immediate roof of Seam No. 3 of GDK-10 Incline, SCCL- A Case Study, Proceedings of Seminar on Recent

Practices and Innovations in Mining Industry, 19-20 February, 2016, Raipur.

13. Kumar Reddy, S and Rajan Babu A. (2017). Numerical stability analysis of an open pit mine slope by FLAC/SLOPE- A case study, Proceedings of conference on Numerical modeling in geomechanics, 3-4 March, 2017, IIT-Roorkee.
14. Kumar Reddy, S and Rajan Babu A. (2017). Monitoring the movement of slopes in opencast mines, Proceedings of international conference on Advanced Engineering and Information Technology, 7-9 December, 2017, Linton University College, Mantin, Malaysia (ISBN: 978-967-15567).
15. Kumar Reddy. S, AmrithRenaldy. T, Meena SS, Bharath Kumar AY and Rajan Babu A. (2019). Slope stability studies in an open pit mine, Proceedings of national conference on Recent Advances in Mining Technology (RAMT-2019), 23-24 May, 2019, Bengaluru.
16. AmrithRenaldy. T, Bharath Kumar AY, Meena SS, Kumar Reddy. S, and Rajan Babu A. (2019). Assessment of stability of high walls of a granite quarry, Proceedings of national conference on Recent Advances in Mining Technology (RAMT-2019), 23-24 May, 2019, Bengaluru.
17. Kumar Reddy. S, AmrithRenaldy. T, Meena SS, Bharath Kumar AY and Rajan Babu A. (2019). Slope stability study of an open pit mine – A case study, Proceedings of national symposium on Safe and sustainable mining – Future challenges, 5-6 July, 2019, Kanyakumari.
18. A RajanBabu, AmrithRenaldy. T, Meena SS, S Kumar Reddy and AY Bharath Kumar. (2019). Feasibility of extraction of locked up ore in the opencast benches by innovative methods, Proceedings of national symposium on Safe and sustainable mining – Future challenges, 5-6 July, 2019, Kanyakumari.
19. Kumar Reddy. S. and Ram Chandar K (2020). Stability assessment of highwall slope of an open pit coal mine – A Case Study, conference on Recent practices and advancement in mineral industry (RPAMI), 21-22 February, 2020, Nagpur.
20. Kumar Reddy. S. (2020). Feasibility of extraction of locked up ore in the opencast benches by innovative methods, FDP on Slope and dump stability in open pit mines, 3-8August, 2020, Hyderabad.
21. Kumar Reddy. S. (2020). Slope stabilization techniques in opencast mines, FDP on Slope and dump stability in open pit mines, 3-8August, 2020, Hyderabad.
22. Kumar Reddy. S. (2021). Slope Stability and Stabilization Methods in open pit mines, TEQIP-III Workshop on Slope Stability and Stabilization Methods in open pit mines, 8th February, 2021, Surathkal.
23. Kumar Reddy. S. (2021). Design of deep excavation slopes in open pit mines, TEQIP-III Workshop on Slope Stability and Stabilization Methods in open pit mines, 11th February, 2021, Surathkal.
24. Kumar Reddy. S. (2021). Introduction to Planning inSurface Mine Projects, ATAL-AICTEFDP on Planning of Surface Mining Projects, 23rdAugust, 2021, NITK-Surathkal.
25. Kumar Reddy. S. (2021). Drilling in Surface Mine Projects, ATAL-AICTEFDP on Planning of Surface Mining Projects, 24thAugust, 2021, NITK-Surathkal.
26. Kumar Reddy. S. (2021). Slope Design in Surface Mine Projects, ATAL-AICTEFDP on Planning of Surface Mining Projects, 25thAugust, 2021, NITK-Surathkal.
27. Kumar Reddy. S. (2021). Slope Stabilization in Surface Mine Projects, ATAL-AICTEFDP on Planning of Surface Mining Projects, 25thAugust, 2021, NITK-Surathkal.
28. Kumar Reddy. S. (2021). Safety in Surface Mine Projects, ATAL-AICTEFDP on Planning of Surface Mining Projects, 26thAugust, 2021, NITK-Surathkal.
29. Kumar Reddy. S. (2021). Introduction to slope stability in mining & infrastructure projects, PDP on Design & monitoring of slope stabilization Mining & infrastructure projects, 15thSeptember, 2021, ESCI–Hyderabad.

30. Kumar Reddy. S. (2021). Slope failures and socio-economic influence on mining & infrastructure projects, PDP on Design & monitoring of slope stabilization Mining & infrastructure projects, 15thSeptember, 2021, ESCI–Hyderabad.
31. Kumar Reddy. S. and Anil S Naik (2022). Application of Internet of Things in environmental monitoring for Underground Mining: A Systematic Review, National conference on 'Recent Trends in Intelligent Control Communications and Computing Technologies in Mining (RTIC3TM -2022)' 27th March 2022, University College of Engineering, Kakatiya University, Kothagudem.
32. RM Perumulla, G Mandela & S Kumar Reddy (2022). A critical review on scope of smart pore water pressure sensors for Slope stability studies, National conference on 'Recent Trends in Intelligent Control Communications and Computing Technologies in Mining (RTIC3TM -2022)' 27th March 2022, University College of Engineering, Kakatiya University, Kothagudem.
33. Kumar Reddy. S. (2022). Slope stability and stabilization in opencast mines, keynote on Opencast mining, 28thMarch, 2022, KSMCL–Bengaluru.
34. Anil S Naik and Sandi Kumar Reddy(2022). A Comprehensive Review on Role of Internet of Things Technologies in Wireless Environmental Monitoring System for Underground Mining, National conference on 'Challenges in Safety and Environmental Management in Mines (CSEMM 2022)' 17th-19th June 2022, NIT Rourkela.
35. Anuj Kumar Singh and Sandi Kumar Reddy (2022). Geological Modelling and risk management, National conference on 'Challenges in Safety and Environmental Management in Mines (CSEMM 2022)' 17th-19th June 2022, NIT Rourkela.
36. Sandi Kumar Reddy, MandelaGovindaraj&RammohanPerumulla, (2022). Scope of FBG based Sensors in Mining Engineering, National conference on 'Challenges in Safety and Environmental Management in Mines (CSEMM 2022)' 17th-19th June 2022, NIT Rourkela.
37. G Mandela, S Kumar Reddy &RM Perumulla, (2022). Application of Optical Fiber based FBGsensor in Mining Industry', 3rdNational conference on COSINE (NCCOSINE-22)' 24th -25th June 2022, NIE Mysuru.
38. Kumar Reddy. S. and Anil S Naik (2022). IoT based Real-Time Air Quality Monitoring System using MQ135 and ThingSpeak for the safety of mine workers in the mining industry, 3rd National conference on COSINE (NCCOSINE-22)' 24th -25th June 2022, NIE Mysuru.
39. Kumar Reddy. S. (2022). Production Drilling in Opencast Mines, Workshop on 'Blasting for Mines/Quarries/Infrastructure Projects', 1st-2nd August, 2022, NITK-Surathkal.
40. Kumar Reddy. S. (2022). Introduction to Blasting for Mines/Quarries/Infrastructure Projects, Workshop on 'Blasting for Mines/Quarries/Infrastructure Projects', 1st-2nd August, 2022, NITK-Surathkal.
41. Kumar Reddy. S. and Anil S Naik (2022). An Enhanced IoT and LoRa based Communication System for Underground Mines, Second International Conference on Signals, Machines and Automation (SIGMA 2022)' Organized by Netaji Subhas University of Technology, New Delhi, India, from August 5-6, 2022.
42. Kumar Reddy. S. Anil S Naik& Mandela Govindaraj(2022). IoT based Real-Time Air Quality Monitoring System using MQ135 and ThingSpeak for the safety of mine workers in the mining industry, International symposium on Recent trends in Mineral Industry -2022' 23 -24September 2022, Osmania University, Hyderabad.
43. Anuj Kumar Singh and Sandi Kumar Reddy (2022). Geological Modelling and risk management, International symposium on Recent trends in Mineral Industry -2022' 23 -24 September 2022, Osmania University, Hyderabad.

44. Sandi Kumar Reddy, Mandela Govindaraj&RammohanPerumulla, (2022). Scope of FBG based Sensors in Mining Engineering, International symposium on Recent trends in Mineral Industry -2022' 23 -24September 2022, Osmania University, Hyderabad.
45. Sandi Kumar Reddy (2022). Critical Highwall Slope Stability Assessment of an Open Pit Coal Mine, International symposium on Recent trends in Mineral Industry -2022' 23 -24September 2022, smania University, Hyderabad.
46. Sandi Kumar Reddy, Anil Naik& Mandela Govindaraj (2022).Wireless Monitoring of Environmental Parameters for Underground Mining using Internet of Things with LoRa Transceiver Module, 7th IEEE International Conference on Recent Advances and Innovations in Engineering,1-3 December 2022, NITK Surtahkal.
47. Anil Naik, Sandi Kumar Reddy and Mandela Govinda Raj (2022). Implementation of Environmental Parameters Monitoring and Alert system for underground mining using Internet of Things with LoRa Technology (4th International Conference on Advanced Technologies for Societal Applications). 9 -10th December 2022.
48. Sandi Kumar reddy (2023). Highwall Stability Assessment for Sustainable Development in an Open Pit Coal Mine. International Conference on Opencast Mining Technology &Sustainability (ICOMS-2022) organized by Northern Coalfields Limited (NCL), Singrauli, 10-11th April 2023.
49. Sandi Kumar Reddy (2023). *Stability Assessment and Design of Open Pit Slopes of Limestone Mines in India*, 4thInternational conference on Geology and Earth Sciences (ICGES 2023)' 15 -17 June 2023, Bangkok, Thailand.
50. Sandi Kumar Reddy (2023). Stability Assessment and Optimum Pit Slope Design in Open Pit Iron Ore Mines, 33 National Convention of Mining Engineers & National Seminar on Amended Mines Regulations And Its Impact on mining industry' 11 th -12th August 2023, Bangalore.
51. Sandi Kumar Reddy (2023). Dynamic Stress Concentration on Barrier Pillars due to Final Excavation by Blasting Gallery Mining, 1st SLRMES International Conference on Rock Mechanics for Infrastructure and Geo-Resources Development3-7 December 2023, Colombo, Sri Lanka.
52. Sandi Kumar Reddy & Anil S Naik (2024). Implementations of IoT Applications for Environmental and Safety Monitoring in Underground Mines, 4th International conference on advanced technology in exploration and exploitation of minerals, 8-10 January 2024, Jodhpur .
53. Anil Naik, Sandi Kumar Reddy and Mandela Govinda Raj (2024). Implementation of Environmental Parameters Monitoring and Alert system for underground mining using Internet of Things with LoRa Technology, International Conference on "Mining for a Greener Future: Technological developments and Sustainable Practices" 16-17 February 2024 at NITK Surathkal.
54. Sandi Kumar Reddy, Mandela Govindaraj & Rammohan Perumulla, (2024). Scope of FBG based Sensors in Mining Engineering, International Conference on "Mining for a Greener Future: Technological developments and Sustainable Practices" 16-17 February 2024 at NITK Surathkal.
55. Eshwarayya B L, Mangalpady Aruna & Sandi Kumar Reddy (2024). Development of Regression Model and Optimization of Mechanical Properties of Geopolymer Concrete Prepared Using Gold Ore Tailings, International Conference on "Mining for a Greener Future: Technological developments and Sustainable Practices" 16-17 February 2024 at NITK Surathkal.
56. Abhish MS, Prashanth MH, Sandi Kumar Reddy (2024). Seismic behavior of segmental underground tunnel lining and the joints, International conference on Sustainable

infrastructure: Innovations, Infrastructure, Opportunities & Challenges (SIIOC-2024) organized by NITK Surathkal held during 30/04/2024 to 01/05/2024.

57. Rammohan Perumalla, Sandi Kumar Reddy, Mandela Govindaraj (2024) Study of Soil Water Retention Curve Characteristics of Goan Iron Ore Open Pit Mine Slopes. Indian symposium on Offshore Geotechnics ISOG-2024, organized by Department of Civil Engineering, Surathkal, India, November 8-9, 2024.
58. Guglavath Dinesh, Dr. Sandi Kumar Reddy (2024), A Study on Characterization of In-situ Soil Materials of an Iron Ore Mines in the Goan Area. Indian symposium on Offshore Geotechnics ISOG-2024, organized by Department of Civil Engineering, Surathkal, India, November 8-9, 2024.

Book Chapters:2

1. Kumar Reddy. S. and Anil S Naik (2022). An Enhanced IoT and LoRa based Communication System for Underground Mines, Signals, Machines and Automation, pp 513-512 (SPRINGER). ISBN978-981-99-0969-8
2. Kumar Reddy. S. and Anil S Naik (2022). Implementation of Environmental Parameters Monitoring and Alert System for Underground Mining Using Internet of Things with LoRaTechnology,Techno-societal 2022, pp 69-76 (SPRINGER). ISBN 978-3-031-34644-6https://doi.org/10.1007/978-3-031-34644-6_8

Projects Handled (PI/Co-PI):

Significant projects: 7 Completed + 2 Ongoing

1. Determination of optimum safe distance of dump from pit and design guidelines for overall stability in open pit mines in different geo-mining conditions, SERB, CRG(Ongoing).
2. Underground Mine Real Time Air Quality Monitoring and Assessment at Surface Control Room based on LoRa Sensors, IoT and Machine Learning Techniques, VGST, K-Fist (L1) (Ongoing).
3. Scientific study for pit slope stability studies of Subbarayanahalli Iron Ore Mine &Thimmapangudi Iron Ore Mine, Karnataka State Mineral Corporation Limited, Karnataka.
4. Investigations of pit slope failure analysis and slope design parameters of Krishna limestone mine, Krishna Mines Ltd. Tamilnadu.
5. Investigations of slope design parameters of Kaliapani chromite mine, Balasore Alloys Ltd. Odisha.
6. Investigation of suitable stoping method and supporting system design for the Baryte mines at Pulivndula, Baryte Mines Association Ltd., Andhra Pradesh.
7. Study of optimum pillar design in Blasting Gallery panels in 3seam at GDK-10 Incline, RG-III Area, Singareni Collieries Company Ltd., Telangana State.
8. Investigation of Cavability of overlying Strata and Development of Guidelines for estimation of Support Capacity for Longwall Faces, Central mine planning and design institute limited (CMPDI), Ministry of Coal.
9. Investigation of effect of dump load on pit stability of Basanth Nagar Limestone mine, Kesoram Industries Ltd., Telangana State.

Consultancy projects:73

1. Strata control investigation in Panel No. CMP-2 during extraction by CM at VK-7 Incline, KGM area, Singareni Collieries Company Ltd., Telangana State.
2. In-situ strength test of pillars in BG panel in 3 Seam at GDK-10 Incline, RG-III Area, Singareni Collieries Company Ltd., Telangana State.
3. Strata 10ehavior analysis in BG Panel No. 1D in 3 Seam, GDK-10 Inc., RG-III Area, Singareni Collieries Company Ltd., Telangana State.
4. In-situ strength test of pillars in WS panel in 2 Seam at GDK-11 Incline, RG-II Area, Singareni Collieries Company Ltd., Telangana State.
5. Strata monitoring in WS Panel No.4 at GDK-8A Incline, RG-II Area, Singareni Collieries Company Ltd., Telangana State.
6. Strata monitoring in BG Panel No.3B in 3 Seam at GDK-10 Incline, RG-III Area, Singareni Collieries Company Ltd., Telangana State.
7. Testing of material properties of OCP-2, RG-II Area, Singareni Collieries Company Ltd., Telangana State.
8. Testing of material properties of OCP-3, RG-III Area, Singareni Collieries Company Ltd., Telangana State.
9. Strata control investigation in Panel No. CMP-3 during extraction by continuous miner at VK-7 Incline, KGM area, Singareni Collieries Company Ltd., Telangana State.
10. Strata monitoring in WS Panel No.5 at GDK-8A Incline, RG-II Area, Singareni Collieries Company Ltd., Telangana State.
11. Conducting non-destructive test at shanthikahani man winding shaft, Singareni Collieries Company Ltd., Telangana State.
12. Testing of material properties of OCP-1, RG-1 Area, Singareni Collieries Company Ltd., Telangana State.
13. Study on the impact of quarry operations to nearby Arkavathy dam and other structures and recommendation for scientific quarrying, Nellahalli village (Quarry lease No. 313, survey No. 298), Kanakapura taluk, Ramnagara district.
14. Soil testing and analysis for the study of stability of dumps at Medapalli OCP, Singareni Collieries Company Ltd., Telangana State.
15. Conducting non-destructive test at PVK-5 man winding shaft, Singareni Collieries Company Ltd., Telangana State.
16. Conducting non-destructive test on haulers at gdk-1, 3, 5, 8, 10, 10A, 11, Vakeelpalli, RK1 and Shanthikhani mines, Singareni Collieries Company Ltd., Telangana State.
17. Strata monitoring in WS Panel No.5 at GDK-8A Incline, RG-II Area, Singareni Collieries Company Ltd., Telangana State.
18. Strata control investigation in Panel No. CMP-4 during extraction by continuous miner at VK-7 Incline, KGM area, Singareni Collieries Company Ltd., Telangana State.
19. Strata control investigations in Panel 38 Level East Panel in V seam at Churcha Mine, South Eastern Coal Fields Limited.
20. Dump material testing of Kaliapani chromite mine at Kaliapani, Jajpur District, Balasore Alloys Ltd., Odisha.
21. Determination of physico-mechanical propertie of Vemanooru granite rock samples, Archean Industries Pvt. Ltd.
22. Slope stability studies of Bicholim Iron ore mine, Sigao and Collem village, Dharbandora taluka, Goa.
23. Determination of physico-mechanical properties of Somapuram granite rock samples, Archean Industries Pvt. Ltd.

24. Determination of physico-mechanical properties of Chinoor granite rock samples, Archean Industries Pvt. Ltd.
25. Determination of physico-mechanical propertieofSathugranite rock samples, Archean Industries Pvt. Ltd.
26. Determination of physico-mechanical propertieofRamakuppam granite rock samples, Archean Industries Pvt. Ltd.
27. Determination of physico-mechanical propertieofBeerna granite rock samples, Archean Industries Pvt. Ltd.
28. Review the slope stability measures at Pallava Granites, Chimakurthy, Prakasam District, A.P.
29. Slope stability studies of CopilaGaichem Paul Iron ore mine, Sigao and Collem village, Dharbandora taluka, Fomento Resources Pvt. Ltd., South Goa.
30. Slope stability studies of Kavalapalli granite quarry. Pilery, A.P
31. Slope stability studies of Ananthapur granite quarry. Pilery, A.P
32. Slope stability studies of Santhekalla granite quarry. Pilery, A.P
33. Slope stability studies of Kuppam granite quarry. Pilery, A.P
34. Scientific studies to optimize the bench parameters and design of final pit slope stability studies of G V granites quarry in Naganur village, Kulithalai Taluk, Karur district, Tamilnadu.
35. Scientific studies to optimize the bench parameters and design of final pit slope stability studies of Magna stone quarry in Thogaimali village, Karur district, Tamilnadu.
36. Determination of physico-mechanical propertie of GV Granite quarry, Tamilnadu.
37. Slope stability studies of Bicholim Iron ore mine, Sigao and Collem village, Dharbandora taluka, Vedanta Pvt. Ltd., South Goa.
38. Slope stability studies of Codli Iron ore mine, Sigao and Collem village, Dharbandora taluka, Vedanta Pvt. Ltd., South Goa.
39. Scientific study on stability of south side (in-corp) highwall benches at MOCP, RG-1 area, SCCL, Peddapalli District, Telangana State.
40. Slope stability studies of Kuppam granite quarry. Pilery, Tamilnadu.
41. Strata Control and Monitoring Plan (SCAMP) for Depillaring Panel No. 9LS & 4LS in Seam 'A' of Kurja Underground Mine, HASDEO Area, SECL.
42. Strata Control and Monitoring Plan (SCAMP) for Rajnagar R.O Mine, HASDEO Area, SECL.
43. Scientific Studies Dump Slope Stability with Suitable Bench Parameters for Narrain Iron Ore Mine, Vedanta Pvt. Ltd., Karnataka State.
44. Scientific studies to optimize the bench parameters and design of final pit slope stability of K Deivendran granite quarryVeeriyampalayam village, Karur, Tamilnadu.
45. Design and stability evaluation of proposed deepening of mine workings (from -44 to -66) including the surface dumps stability at Redi Iron Ore Mine of Gogte Minerals, Fomento Resources Pvt. Ltd.
46. Scientific Study for design of Ultimate Pit Slope, stability assessment and monitoring of slopes of Dharmapura Iron Ore Mine of Sri V.N.K Menon mines, Sandur, Bellary.
47. Scientific Study for design of slopes and stability assessment of slopes of Dolomite Project at Mangampet, APMDC Limited, Andhra Pradesh.
48. Scientific Study for slope stabilization and monitoring of ground movement of South Face, Mine I of NLCIL, Neyveli, TN.
49. Slope stability studies for the optimization of bench parameters of SM Block iron ore mine M/s. M. Hanumantha Rao at Narayanpur village, Bellary district, Karnataka.
50. Slope stability studies of Rajesh granite quarry. Kannur, Kerala.
51. Slope stability studies of Kallaritical granite quarry. Mallapuram, Kerala

52. Slope stability studies for the optimization of bench parameters and recommendation for the final pit slope stability of Indaram opencast project, Srirampur area, Singareni collieries company limited.

53. Slope stability studies for the optimization of bench parameters and recommendation for the final pit slope stability of Sadahalli quarry.

54. Review the slope stability measures at Megha Granites, Madhalli Village, Chamrajanagar District, Karnataka.

55. Slope stability studies for the optimization of bench parameters and recommendation for the final pit slope stability of Srirampur opencast project-2, Srirampur area, Singareni collieries company limited.

56. Slope stability studies for the optimization of bench parameters and recommendation for the final pit slope stability of John iron ore mine, Chitradurga, Karnataka.

57. Slope stability studies for the dump slope stability of John iron ore mine, Chitradurga, Karnataka.

58. Slope stability studies for the optimization of bench parameters and recommendation for the final pit slope stability of Dharmapuri iron ore mine, Bellary, VESCO, Karnataka.

59. Third party inspection and certification of underground mine development works at Uti Gold Mine, Hutti Gold Mines Company Ltd.

60. Scientific study for stability analysis of benches of Basant Nagar Limestone Mine, Telangana State.

61. Geotechnical Study of the Quarry for Safe Workings and Optimum Design in Survey No.192, Madahalli Village, Gundlupet Taluk, Chamarajanagar District, Karnataka.

62. Geotechnical Study of the Quarry for Safe Workings and Optimum Design in Survey No.192, Madahalli Village, Gundlupet Taluk, Chamarajanagar District, Karnataka.

63. Extension of third party inspection and certification of underground mine development works at Uti Gold Mine, Hutti Gold Mines Company.

64. Slope Stability Studies for Safe Workings and Optimum Design of M/s Muhammedali P Quarry Located at Morayur Village, Kondotty Taluk, Malappuram District, Kerala

65. Slope Stability Study of the ZamblidadgaDongor Iron Ore & Manganese Ore Mine (M.L.No.3/Fe/Mn/79) of Naraina Sinai Quirtonim for Safe Workings and Optimum Design situated at Cavurem Village, Quepem Taluk, Naraina Sinai Quirtonim, South Goa.

66. Slope Stability Study of the Kalay Iron Ore Mine of Fomento Resources Pvt. Ltd. For Safe Workings and Optimum Design situated at Santona Village, Sanguem Taluka, South Goa District, Goa, Fomento Resources Pvt. Ltd.

67. Slope stability study of the Block-V, Advalpale-Thivim Mineral Block M/s Fomento Resources Private Limited for safe workings and optimum design situated at Advalpale and Thivim Villages, Bicholim&Bardez Taluka, North Goa District, Goa, Fomento Resources Pvt. Ltd.

68. Scientific studies for recovery estimation of granite material from the Hosamani Granite (QL No: 399), Ilkal, Bagalkot District, Karnataka, Hosamani Granites.

69. Proposing a method for reclamation / maintenance of old existing tailing ponds belonging to "Greater Ferromet, Division of Sociedade De Fomento Industrial Private Limited" located at Santona Village, Sanguem Taluka, South Goa District, Goa, Sociedade De Fomento Industrial Pvt. Ltd.

70. Study and suggest old tailing ponds design for safe and optimum disposal of tailings generated from Wet Beneficiation Plant of "Greater Ferromet, Division of Sociedade De Fomento Industrial Private Limited" located at Santona Village, Sanguem Taluka, South Goa District, Goa, Sociedade De Fomento Industrial Pvt. Ltd.

71. Pit Slope Stability Scientific Study for Block II, Sirigao-Mayem Mineral Block of Salgaocar Shipping Co. Pvt. Ltd. located in Bicholim Taluka of North Goa District, Salgaocar Shipping Company Private Limited.

72. Proposed Dump Slope Stability Scientific Study for Block II, Sirigao-Mayem Mineral Block of Salgaocar Shipping Co. Pvt. Ltd. located in Bicholim Taluka of North Goa District, Salgaocar Shipping Company Private Limited.

73. Slope stability study of the Mauli Iron Ore block of M/s Sociedade De Fomento Industrial Pvt. Ltd. For safe workings and optimum design situated at Redi (Kanyale) village, Vengurla Taluka, Sindhudurg District, Maharashtra State, Sociedade De Fomento Industrial Pvt. Ltd.

Programs Conducted/Attended:

- Slope Stability and Stabilization Methods in open pit mines, Type-National Workshop, Role-Coordinator, Start Date-8th February 2021, End Date-12th February 2021, Sponsored By-NITK.
- A workshop on 2nd SME NITK for BTech Students organised during 5-6th March 2021 by the department of mining engineering; Sponsored By- Sponsored By-Vedanta Ltd.
- IIRS Outreach programme on Machine learning to deep learning: A journey for remote sensing data classification, July 05, 2021 to July 09, 2021.
- IIRS Outreach programme on Remote Sensing of Land Degradation December 01, 2020 to December 07, 2020
- SAR Application for flood hazard mapping and monitoring July 16, 2021
- IIRS Outreach programme on geospatial technology for hydrological modelling July 19-30, 2021
- Planning of surface mining projects, Type-National Workshop, Role-Coordinator, Start Date-23 August 2021, End Date-27th August 2021, Sponsored By-ATAL AICTE.
- Resource Estimation for Mineral Deposits during 21-09-2021 to 22-09-2021 organised by GSI, Training Institute (Mission-V) Regional Training Division-SR, Hyderabad.
- Basics of geographical information system and its application conducted by CGMT Division of GSI Training Institute, Hyderabad from 06.01.2021 to 08.01.2021.
- A workshop on 2nd SME-NITK for BTech Students organised during 11th -12th March 2021 by the department of mining engineering; Sponsored By-Hutti Gold Mines Company Ltd.
- A webinar conducted on ‘Artificial Intelligence & Machine learning in mining with specific applications: Pas-Present & Future’ by Dr Ramesh Bhatawdekar, Adjunct Professor, Dept. of mining Engg, IIT Khargapur on 4th February 2021
- A webinar conducted on ‘Mine waste utilization and management’ by Dr Anjani Kumar, Ex-Principal scientist, CSIR-CIMFR, Dhanbad on 9th March 2022
- A webinar conducted on ‘Be an entrepreneur’ by Dr ShanthAverahallyThimmaiah, Member-BoG, NITK Surathkal on 22nd Oct 2021

- A webinar conducted on ‘Slope Stabilization & Erosion Control Solutions for Mining Applications’ by Mrs. KinjalParmer, Sr. Manager-technical, Maccaferri Environmental Solutions Pvt. Ltd on 9th October 2020
- Dr Sandi Kumar Reddy is one of the member from NITK Surathkal for JoSAA verification 2021-22.
- Dr Sandi Kumar Reddy is one of the Member of technical coordinator committee of National Conference on Recent Trends in Intelligent Control Communications and Computing Technologies in Mining (RTIC3TM -2022) organised during 27 March 2022.
- Name-Blasting for Mines/Quarries/Infrastructure projects, Type-Skill Development Workshop, Role-Coordinator, Start Date-1st August 2022, End Date-2nd August 2022, Sponsored By-NITK.