



NATIONAL INSTITUTE OF TECHNOLOGY

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Singam Jayanthu, FIE, C Engr

PhD, M Tech, BE (Mining) , MS(Counselling & Psychotherapy)
Former Scientist of CMRI & NIRM
NATIONAL MINERAL AWARDEE-2000
Chief Editor, Indian Mining & Engg Journal

Professor

Dept of Mining Engineering

<https://www.nitrkl.ac.in/FProfile.aspx?e=sjayanthu>

Dr. Singam Jayanthu boasts a remarkable career spanning over four decades, making significant contributions to the Indian mining industry. His journey began with unique blend of experiences in the field as a field engineer since 1987 at SCCL, leading him to prestigious roles at CMRS (presently CSIR-CIMFR), NIRM-Ministry of Mines, and finally, Professor at NIT Rourkela since 2006. **Pioneered Trans-Disciplinary Translational Industry Oriented Research and Academics (TTIORA) in line with NEP2020 since 2006.** Stands out for his pioneering work in applying trans-disciplinary research (EE, ECE, CSE, EIE) to mining challenges. He has been guiding doctoral research for more than 20 PhD scholars on field oriented translational research and academics on projects utilizing AI, ML, Wireless Sensor Networks (WSN), LoRa, IoT, and Fog Computing etc with many experimental trials of indigenous innovative mining technologies **for the first time in India and also in the international scenario.** Details of contributions are also available in <https://www.nitrkl.ac.in/FacultyStaff/FacultyProfile/sjayanthu> Some of the significant contributions, achievements along with impact in the mining technologies are mentioned below;

1. **Multiple Seam Mining:** Developed a ground-breaking method for simultaneous extraction of three contiguous seams, improving resource recovery and worker safety. This innovation received a Science and Technology project grant from the Ministry of Coal. Experimental trial of **innovative skills was demonstrated in simultaneous extraction of three contiguous seams successfully, with cutting edge-research design and application for the first time in the international scenario,** when the multiple seam mining was in jeopardy at a typical mine.
2. **Thick Seam Mining:** Conducted pioneering experimental trials to optimize the extraction of thick coal seams, leading to recovery from 40% to 75%, productivity from 1.43 to 2.01 with enhanced safety of workers and workings as compared to conventional system of extraction. In thick seam mining, pioneering efforts have unlocked vast reserves of coal that were previously deemed unworkable. Through experimental trials and strategic use of cable bolts **first time in Indian coal mining scenario,** significantly improved safety standards in coal extraction, earning accolades such as a Doctor of Philosophy (Ph.D) from IIT-BHU and Ministry of Coal grants.
3. **Eco-friendly Mining:** Championed the use of partial extraction methods and fly ash utilization for protecting surface structures and promoting sustainable mining practices.
4. **Strata Control Technology:** Trained more than 400 strata control engineers since 2007, as per the urgent requirements of mining industry as per recommendations of 10th conference of safety, **first time in Indian mining scenario.** As member of International arbitration committee for Kottadiah-ECL accident of long wall panel, and other high power committees for technology implementation, and development of indigenous mining Technology. Developed a modified Slope Mass Rating (SMR) system specifically tailored to Indian conditions **first time in Indian mining scenario.**
5. **Rock/Rope/Material Testing/ Fracture Mechanics/NDT:** Actively associated with testing, analysis of rock properties for better understanding of rock mechanics analysis in Tunnelling, Hydroelectric projects, coal and metal mines etc. Data base was developed on detailed testing of dimensional stones **for the first time in India.** Conducted extensive non-destructive testing of various mining machinery parts; winding equipment, ropes for better understanding of the condition of the equipment.
6. **Fly ash and bottom ash utilization for opencast and underground mines;** Extensive laboratory and field investigations were conducted related to stability analysis for many opencast and underground mines with fly ash and bottom ash. Developed concept, design, field implementation for understanding stability of overburden dumps admixture with fly ash to suite the Indian mining conditions.
7. **Curriculum Development:** As Head and Professor of Dept of Mining Engg, introduced the subjects of present importance such as Slope Stability Engineering, Ground Control Instrumentation, Strata Control Technology, Deep Seam Mining, Advanced Underground Coal Mining Methods etc. Actively involved in curriculum development of mandatory courses including value education, yoga, meditation etc for Engineering undergraduate students as a member of AIB-UG-E&T. Mentor of various institutions for preparation of NBA documents and accreditation.
8. **Safety and Environmental Initiatives:** Collaborated with LVPEI and other institutions to address dry eye syndrome caused by mining pollution and promote environmental health initiatives.

Impact on the Industry: The above contributions have demonstrably improved safety, efficiency, and sustainability in the Indian mining industry. His pioneering work had a lasting positive impact on resource recovery, worker safety, and environmental practices.

CONSULTANCY AND SPONSORED RESEARCH ACTIVITIES

Dr Jayanthu, in many of the projects as Project Leader/Principal Investigator, was actively associated with above 120 projects sponsored by various industries, Ministry of Coal, and Ministry of Mines, Govt. of India. List of salient projects undertaken as a scientist at CSIR-CIMFR Central Institute for Mining and Fuel Research, National Institute of Rock Mechanics (NIRM), and As professor at NIT Rourkela are as follows:

Projects Undertaken At CSIR-CIMFR

1. Monitoring of strata behaviour around a longwall stowing face at Amlabad Colliery, BCCL
2. Study of influence of operational parameters on performance of large diameter blast hole drills at Block II and Kusunda OCP, BCCL
3. Study on behaviour of shield supports and overlying strata during integral caving of thick seam at East Katras Colliery, BCCL
4. *Mechanised depillaring of thick #3 seam with cable bolting at NCPH colliery of Chirimiri area, SECL
5. Development of a method for mining of zero seam of Chirimiri colliery under Barthunga hills, SECL
6. Development of a method for mining of Major seam of Rajur colliery, WCL
7. Mining of upper seams under Damodar river at Chasnala colliery, BCCL
8. Design of chain pillars for depillaring panels at West Jhagrakhand colliery, SECL
9. Wide stall mining of Bansgarha seam at Central Sounda colliery, CCL
10. Mining of seam III developed at West Chirimiri colliery of Chirimiri area, SECL
11. Design of face and gate road support for extraction of XIII seam at North Amlabad colliery, BCCL
12. Experimentation of wide stall mining of seam III under Barthunga hill of Chirimiri colliery, Chirimiri area, SECL
13. Experimentation of wide stall mining to enhance recovery from Burhar seam at Amlai colliery, Suhagpur area, SECL
14. Study for feasibility of wide stall mining for optimum recovery of Jarangdih top seam at Swang colliery, CCL
15. Design of support for depillaring districts of Begunia seam at Begunia colliery, Chanch Victoria area, BCCL

Projects Undertaken at NIRM

16. *Design and experimentation of cable bolting for adverse ground conditions in thick seams containing clay bands
17. Strata monitoring in blasting gallery panel at VK-7 incline, SCCL
18. *Development and application of continuous strata monitoring system for evaluating roof stability in coal mines
19. Evaluation of strata control problems and design of support system for extraction of coal in Index and Queen seams at 24 Incline, SCCL
20. Assessment of caveability of roof of King seam at VK-7 Incline, SCCL
21. Evaluation of strata behaviour and design of support system for extraction of pillars in panel #5S1 of #5 seam at RK-8 Incline, SCCL
22. Assessment of caveability of roof of seam #3 at GDK-10 Incline, SCCL
23. Strata behaviour monitoring during extraction of pillars at RK-8 Incline, SCCL

24. Assessment of caveability of roof of seam #3 at GDK-8 Incline, SCCL
25. Optimisation of roof bolting pattern for bord and pillar mining at SCCL mines
26. Design of suitable method of extraction of pillars in thick coal seam at HCP mine, SCCL
27. Study of strata behaviour and support requirements for the proposed extraction of longwall panel #10 at VK-7 incline, SCCL.
28. *Optimum exploitation of locked up pillars of thick and multiple coal seams
29. Strata behaviour monitoring during extraction of pillars by Blasting Gallery method at GDK-8 Incline, SCCL
30. Strata behaviour monitoring during extraction of pillars by Blasting Gallery method at GDK-10 Incline, SCCL
31. **Development of Engineering Classification System for Design of Jointed Rock Slopes
32. Monitoring of depillaring panel 57 LW at Churcha Colliery, SECL
33. Monitoring of depillaring panel 65 LW at Churcha Colliery, SECL
34. Strata monitoring in Longwall Panel#21 at PVK mine, SCCL
35. Strata monitoring in Longwall Panel#22 at VK-7 mine, SCCL
36. *Study into extent of abutment loading trend and design of advance support during pillar extraction by stowing in a coal mine.
37. Study into the roof behaviour and design of support in SRP-3 mine, SCCL
38. Supporting pattern in #3 seam development at Chennur-1 incline, SRP Area, SCCL
39. Rock Mechanics Instrumentation to Monitor the Rock Deformations in the Underground Excavations at Larji Hydro-Electric Project, HPSEB
40. Design of a suitable method of extraction of pillars in panel #SS-10/1A and SS-10/1B of seam #1 under Jangaon Tank at GDK-3 Incline”, Ramagundam Area-I, SCCL
41. Advice regarding support requirement vis-à-vis longwall face collapse at kottadih colliery
42. Studies for evaluation of parting stability using numerical modeling technique, and support design for the development and depillaring of the Bottom Seam, at no. 5 Incline, Kothagudem Area, SCCL
43. Roof deformation investigations at Tandsi mine, WCL while driving 3.6 m and 4.8 m wide galleries.
44. Laboratory Geotechnical investigation of Chenab Bridge- Konkan Railways
45. Non Destructive Evaluation of f drive ropes of cable belt conveyor, NALCO, Damanjodi,
46. Laboratory Rock Mechanics Investigations at Tunnel T1 and tunnel t2, konkan railways.
47. Non Destructive Evaluation of winding ropes of Kolihan and Khetri mines,HCL
48. Laboratory Rock Mechanics Investigations: Diabang Multipurpose Project, National Hydroelectric Power Corporation Limited, Arunachal Pradesh
49. Non-destructive evaluation (Magnetic particle and ultrasonic testing methods) of various winding equipment in Strutt Pit, 21 incline Group of mines, Yellandu(SCCL)
50. In Situ Non-destructive evaluation (Magnetic particle and ultrasonic testing methods) of various winding equipment in metal mines (HZL, MOIL, HGML, UCIL etc)
51. In Situ Non-destructive evaluation (Magnetic particle and ultrasonic testing methods) of various winding equipments at Balaria Mine, HZL
52. In Situ Non-destructive evaluation (Magnetic particle and ultrasonic testing methods) of various winding equipment in various shafts of Hutti Gold Mines Limited
53. In Situ Non-destructive evaluation (Magnetic particle and ultrasonic testing methods) of various winding equipment in SALPG Site-Vishakhapattanam, AP
54. In Situ Non-destructive evaluation (Magnetic particle and ultrasonic testing methods) of various winding equipment in Kolihan and Khetri Copper Mine, HCL
55. Laboratory Testing of winding ropes for various coal (SCCL, WCL etc)and metal mines (HZL, MOIL, HGML etc)
56. Laboratory Geo technical investigation of Katra-Qazigund Rail line- RITES, Jammu &

- Kashmir
57. In Situ Non-destructive evaluation (Magnetic particle and ultrasonic testing methods) of various winding equipment in coal mines of Ramagundam Area of SCCL.
 58. Laboratory Geo technical investigation of Anjikand Bridge- Konkan Railways, Jammu & Kashmir
 59. Laboratory Geo technical Properties of various Dimensional Stones of leading manufacturers and exporters such as RK Marbles, Gem Granites etc in various states of India
 60. ***Physico-mechanical properties of rocks-a data bank

Projects Undertaken at NIT-Rourkela

61. Slope Stability of Dump along with fly ash at Jindal Power open cast coal mines, (JPL) Tamnar, Raigarh
62. Stability of Ultimate Pit Slope at SRP OC-1 Mine, SCCL
63. Study of Stability of Ultimate Pit Slope at Jindal Power open cast coal mines, Tamnar, Raigarh
64. Evaluation of blasting operations and suggestions on safe blasting to limit ground vibrations at Jindal Power open cast coal mines, Tamnar, Raigarh
65. Stability of Ultimate Pit Slope at Jindal open cast coal mines # 1, Dongamauha, Raigarh
66. Slope Stability of Dump along with Fly ash at Jindal open cast coal mines # 1, (JSPL) Dongamauha, Raigarh
67. Slope stability studies and monitoring of slopes in NALCO-Damanzodi, Koraput
68. Scientific study for strata monitoring in depillaring BG panel No 3A in No 3 seam at GDK-10 incline, SCCL.
69. Scientific study for suitable support system for roof and sides at RK-6 Incline, SCCL.
70. Scientific study on Slope Stability of Dump along with 25% fly ash related to JPOCCM mine through model studies
71. Study On Dump Stability, De-Siltation Of Water Tanks, Environmental Pollution For Compliance of Conditions of Forest Clearance at Bolani Iron Ores Mines, SAIL
72. Scientific study on Slope Stability of Dump along with 0%, 15% , and 30% fly ash and field monitoring of dump slope related to Bhupalapalli mine, SCCL
73. Strata Monitoring in BG Panel # BG3E of Queen Seam of 21 Incline, Yellandu Area, SCCL
74. Scientific study on shrinkage of stowed bottom ash in underground coal mine at Bhupalapalli area, SCCL.
75. Scientific Study in BG-II/10 Sub-panel A and sub-panel B panel and 4 seam sand stowing SS-10 of GDK No.8 Inc. RG-II Area
76. Scientific study on strata monitoring in Long Wall panel No.3D1 & 3D2 panels at GDK.10A mine, Adriyala projects area
77. Field monitoring of Stability of dump with 25% fly ash and 75% overburden materials related to JPOCCM mine, JPL.
78. Experimental Trial of Site Mixed Emulsion Explosive in deep hole blasting At Baphlimali Bauxite Mine, M/s UAIL
79. Slope Stability studies and monitoring by suitable instrument at Dongri Buzurg mine, MOIL
80. Study of Stability of dump with 25% fly ash and 75% overburden materials in running benches related to JPOCCM mine, JPL.
81. Scientific Study related to influence of blasting on surrounding structures for metal cladding at IDL Explosives Limited
82. Scientific Study On Stability Of Developed Pillars In Passang Seam Of Balrampur Area, South Eastern Coalfields Limited
83. Scientific Study on ground vibrations due to blasting at Dunguri limestone mine, ACC Ltd.
84. Scientific Study for design of mining method, support plan, strata control, Instrumentation & Monitoring of 122 level West depillaring panel with continuous miner technology of East Block of Churcha Mine (RO), M/s SECL.
85. Evaluation of Physico-mechanical properties of coal and reject material at Kulda opencast mine, Basundhara area of MCL
86. ****Development of TDR based wireless system for slope stability monitoring in Open Cast mines**

87. Evaluation and monitoring of slope movements at Rajmahal Open Cast Coal Mine, ECL after the slope disaster of 29.2.17.
88. Scientific study for the monitoring the roof behaviour through underground instrumentation and monitoring of goaf atmosphere for the proposed blasting gallery panels of No.3.Seam of GDK.11 Incline, RG.1.Area of SCCL, Godhavarikhani, Peddapalli district.
89. Scientific study on ground movement observation for two dumps at Ostapal Chromite mine, M/s FACOR
90. Scientific study on design of pit and dump slopes and monitoring for Dulanga coal mining project of M/S NTPC LTD
91. Scientific study on design of pit and dump slopes and monitoring for Jagannathpur Opencast project of M/S SECL
92. Slope Stability Study for pit and dump for Ardhagram Coal Mine M/s OCL Iron and Steel Ltd.
93. Scientific Study On Design Of Controlled Blasting For Ardhagram Coal Mine M/S OCL Iron And Steel Ltd
94. Scientific study on design of pit and dump slopes for Manganese Opencast mine of M/s S.K. Sarawagi & Company Private Limited,
95. Design of dump with 25% fly ash and 75% overburden materials of to JPOCCM mine at Raigarh, SECL
96. Scientific Study for Strata control and monitoring Plan (SCAMP) as per Reg 123 of CMR-2017 of Orient Colliery Mine No.1 &2 (UG) Orient Area, MCL
97. Scientific study for depillaring with sand stowing beneath PWD road , transmission line etc at KTK-5 Incline Bhupalalli area of SCCL
98. Scientific Study on roof behaviour through underground instrumentation and monitoring of goaf atmosphere for the proposed Blasting gallery Panels K4, and K5 of No 3 seam at GDK11 incline-RG-1 Area, SCCL
99. Scientific Study On Effect of Blasting Operations At Jayanthipuram Lime Stone Mine, The Ramco Cements Limited
100. Scientific investigation of fatal accident and preparation of modified Strata Control Management Plan (SCAMP) for VKP Mine, SCCL
101. Scientific study on design of pit and dump slopes for Ravirala Limestone Mine, The Ramco Cements Limited
102. Scientific study on ground vibrational effects of blasting at our Ostapal chromite mine-Vedanta and its control/mitigation
103. scientific study on design of pit and dump slopes for iv/7 coal block
104. Scientific study for designing controlled blasting to protect nearby villages and other structures belonging to the owner and not belonging to the owner due to blast induced ground vibrations and air overpressure within 500 meters at the GDK coal mine 2 & 2A and 5, RG-I Area , SCCL
105. Scientific study to determine incubation period of OCPLs Manoharpur coal mine
106. Scientific study to determine Crossing Point Temperature, Ignition Point Temperature and Incubation period of HR sections I, II, III & IV at Orient Colliery- 1&2 mine, Orient Sub Area, Orient Area, MCL
107. Scientific study for monitoring of strata management plan including instrumentation during extraction of LWP No 3 at Adriyala Longwall Project (ALP), SCCL
108. Designing, Planning, Continuous Supervision & Monitoring of the Total Drilling & Blasting Activities at Navi Mumbai Internatioal Airport (NMIA) Site –Mumbai
109. **Design and Development of Real-Time Ground Behaviour Monitoring System (RTGBMS) for Underground Metal Mines - An Innovative ICT based Solution
110. Scientific study for Hexavalent Chromium reduction at Ostapal Chromite Mine of M/s. FACOR-Vedanta
111. Design of method of extraction of continuous miner panel #1 at VKP PROJECT, SCCL
112. Scientific study on blast including vibration at Manoharpur Coal Mine Project , OCPL
113. Scientific study on suitability of sandstone available as overburden at Manoharpur Opencast coal mine , OCPL-Odisha as house construction material.
114. Scientific study for designing controlled blasting at Gare Palma IV/7 coal mine, SEML
115. Scientific Study For Determination Of Suitable Method For Blasting With Explosives Upto 50m From The Toe Of The Flood Protection Bund & Beyond 140m And 170m Of 220 KV And 400 KV

- Overhead Transmission Lines At Manuguru Opencast Project Of M/S Sccl
116. Scientific study for safe blasting at Tadicharla OCP Mine-Bhupalapally, AMR
 117. scientific study on control blasting within the danger zone i.e. extending blasting operations upto 50m from the structures and road not belonging to the owner under Regulation 196(3) of CMR-2017 at JVR OC, KGM Area of SCCL
 118. Scientific study to investigate the impact of SRP OC blasting on a proposed explosion-proof/isolated stopping, which are situated within 125 m of the blasting area in the number 1, 3 & 3A Inclines, SRP Area.
 119. Scientific study on design of pit and dump slopes for Khandbandh iron ore mines, Unchabali Iron Ore mines, Banspani Iron Ore mines, and Tiring Pahar Iron Ore mines of OMC Ltd.
 120. Scientific Study On Design and monitoring of Pit and Dump Slopes for Hura 'C' Opencast Coal Mining Project – ECL.
 121. Safety and feasibility study for filling of fly ash in opencast mines of SECL: Gevra, Dipka, Kusmunda, Manikpur, Chhal, Sharda, Kanchan OC mines.
 122. Scientific study for conducting the blasts by using Site Mixed Emulsion (SME)/ Site Mixed Slurry (SMS) explosives in Ravirala Limestone Mine
 123. Scientific study on design of pit and dump slopes for Kotre-Basantpur-Pachmo OCP of Central Coal Fields Ltd.
 124. Scientific study of suitability of SME/SMS in Budawda Mine RAMCO cements (2023)
 125. Scientific study for slope stability analysis at Sree Raja Rajeswari Manganese Mine (SRRMM), Ramabhadrapuram (Mandal)
 126. Scientific Study for Slope Stability of Muktyala Limestone Mine of the KCP Limited
 127. Scientific Study for Safe Blasting in Northern side of Mining Lease Area up to 50 m from HT Power Line of Muktyala Limestone Mine, M/s The KCP Limited
 128. Scientific Study for Safe Blasting in Choutapalli Limestone Mine of My Home Industries Pvt. Limited
 129. Structural stability of airport buildings and associated structures at Rourkela Airport
 130. Scientific Study for Slope Stability analysis of east side Mining of Kaliapani Chromite Mine of Balasore Alloys Ltd
 131. Scientific Study for Slope Stability Monitoring and Strata Management Plan of Kaliapani Chromite Mine of Balasore Alloys Ltd

** Science and Technology projects sponsored by Ministry of Coal, Govt of India*
*** Science and Technology project sponsored by Ministry of Mines, Govt of India*
The respective coalfields/industries sponsored other projects

PATENTS

Associated with patents provisionally filed related to

- i. “A Novel Seismic-Data Acquisition Sensor (S-DAS) for Monitoring Ground Vibration due to Blasting using Sensor Field Network in IoT Framework”,
- ii. “Wireless Distributed Time Domain Reflectometry (WDTDR) Sensor Node for Distributed Real-Time Monitoring of Slope Behaviour”,
- iii. A Novel Roof Sag Sensor (RSS) for Real-Time Monitoring of roof sags in Underground Mines and Tunnels using Mine Sensor Network in IoT Framework”, and
- iv. “Development of an IoT based Mine Environment Safety Monitoring Device- (MESAMONSYs)”.

MEMORANDUM OF ASSOCIATION

Associated with **Agreement For Research Interdisciplinary Collaboration Of Dry Eye Study And Its Impacts & Resolution In Mining Areas** along with LVPEI (L V Prasad Eye Institute), Hyderabad Eye Research Foundation (HERF) of Hyderabad- Telangana, and Bhubaneswar-Odisha, and Biotechnology and medical department of NIT-Rourkela.

Books edited by the candidate as Chief Editor in addition to the Book Chapters presented below:

Sl No	Book/Book Chapter	Title of the Book	Year	Publisher
1	Book Chapter	Ground Control in Mining :The Status Of Art Of Cable Bolting	1996	A.A.Balkema
2	Book	Mining Technology-Present And Future	2007	Mintech
3	Book	Mining Technology-Extraction, Beneficiation for safe and Sustainable Development	2010	Mintech
4	Book	Mining Technology for Sustainable Development	2011	Mintech
5	Book	Mining Technology	2012	Mintech
6	Book	Clean Mining Technology	2013	Mintech
7	Book	Slope Stability Issues in opencast Mining and Civil Engg	2015	NITR and IMEJ
8	Book Chapter	Sustainable Mining Practices	2017	Narosha
9	Book Chapter	The book series Lecture Notes in Electrical Engineering.	2019	Springer
10	Book Chapter	Advances in Intelligent Systems and Computing book series (AISC, volume 992)	2019	Springer
11	Book Chapter	The book series Lecture Notes in Electrical Engineering.	2019	Springer
12	Book Chapter	Lecture Notes in Networks and Systems book series (LNNS, volume 80)	2020	Springer
13	Book Chapter	Recent Practices and Advancement in Mineral Industry	2020	NIT Nagpur
14	Book	Transdisciplinary Approaches to Healthcare Solution During Covid-19	2023	Cambridge Scholars Publishing- London- United Kingdom
15	Book	Sustainable development initiatives in Mining	2023	IME Publications, ISBN- 9788197761881
16	Book	Recent advances in Rock Excavation techniques-	2024	IME Publications, ISBN- 9788197761867

Contribution to Journals:

Details	
Editor in Chief	Indian Mining and Engineering Journal
Editorships	Editorial Board of Journal of sustainable Planet (Institute of advanced technology and Environmental Studies-IATES), Mining Engineers Journal
Peer reviewer for	International Journal of Rock mechanics and Rock Eng.; International Journal of Mining Engineers; Mining, Metallurgy and Exploration; Geological and Geotechnical Engineering; Environmental technology and management; Frontiers in Cognitive Psychology, Science PG, Arabian Journal of Geosciences; American Journal of Applied Psychology, Science PG; World Journal of Educational Psychology, Science PG; African Journal of Politics and Governance, International Scholars Journals; Institution of Engineers -Series D-Springer
Member of the Intl, Advisory Board	> 10 events as a member of advisory Board for various International conferences and Seminars.
Others (Specify) General Chair, Keynote speaker, Chief guest, Chairman, Coordinator etc. for various national and International events	<ul style="list-style-type: none"> • National Seminar on Mining Technology –Present & Future • Workshop On Strata Control Techniques and Instrumentation in Coal Mines • Workshop On Rock Blasting for Blasting Executives of IDL Explosives Limited at IDL, Rourkela • Micro-2018-5th International Conference on Microelectronics, Circuits & Systems • 9th, 10th, 11th, and 12th International Conference on Computing, Communication and Sensor Network –CCSN

SIGNIFICANT ACHIEVEMENTS IN THE FIELD OF MINING TECHNOLOGY

Dr Jayanthu has done pioneering work in the field of mining technology (Conferred **NATIONAL MINERAL AWARD –2000, FOR HIS CONTRIBUTION IN THE FIELD OF MINING TECHNOLOGY**), the **detailed** information regarding the following subjects are generated since 1989, in association/collaboration with CSIR-CIMFR, NIRM, NIT Rourkela etc. His contributions benefited the mining industry with reference to mining methods, environment, health, instrumentation, Application of trans-disciplinary research for mining industries, academic dissipation/training of stake holders with research outcomes, and outputs etc.

(a) Multiple seam mining

Experimental trial of undermining under the goaves of three seams was successfully designed and applied for the first time, when the multiple seam mining was in jeopardy at a typical mine. Based on exemplary success of the trial, Ministry of Coal, Govt. of India granted a Science and Technology project for simultaneous extraction of three seams for the first time in the international mining scenario. Actively involved in experimentation of cable bolting in coal mining. Innovative method of reinforcement of the parting was successfully implemented in underground mines in multiple seams. Simple system of grouting from the top section was adopted without deploying any costly equipment such as hydraulic drills, pneumatic grouting machines, etc.

(b) Thick seam mining

In the present Indian coal mining scenario, about 1,500 million tons of coal is locked in pillars due to non-availability of proper technology in thick coal seams. Various experimental trials were conducted for optimal exploitation of such coal reserves which otherwise are unworkable. The depillaring concept with cable bolt as a means to support high roof was experimented in four panel, which facilitated extraction of pillars to full seam height. As the coal evacuation was under the supported roof with indigenously available side discharge loaders (SDL), level of recovery improved from 40% to 75%, productivity from 1.43 to 2.01 with enhanced safety of workers and workings as compared to conventional system of extraction. Research work of the candidate related to experimentation of the innovative field trial of extraction of pillars in a thick coal seam was awarded Doctor of Philosophy (Ph.D).

(c) Rock caving mechanics

Several longwalls, and pillaring panels in India failed indicating the need of a rethink to be made on estimation of supports and design of workings. For the first time, caving mechanism in BG panels was projected based on laboratory testing of cores, field instrumentation, finite element and analytical analyses, when the workings were proposed at greater depths. Two panels were successfully extracted. Pioneering attempts were made for warning of goaf falls in caving method of coal extraction. The candidate was selected for collaboration with RMT, UK on the above subject.

(d) Slope Stability

Applicability of different rock mass classification systems to slope stability analysis for seven opencast mines were critically evaluated, and the conventional Slope Mass rating (SMR) system was modified to suite the Indian conditions.

(e) Ground control and support design

Optimized the support, reducing wasteful expenditure due to over-design, and assuring, at the same time, safe and usable galleries, as a part of international collaboration projects with RMT-UK. When a panel was proposed to be extracted in between the goaves of two adjoining panels, adequacy of the barriers was assessed. Support and strata behaviour in various longwall faces were evaluated. The recommended design was implemented for extraction of the otherwise unworkable area. Rock mechanics study was conducted for the feasibility of depillaring in typical cutter roof areas with high horizontal stress. Based on close interaction with researchers of USA, UK, and Australia, an innovative design was proposed to help in better roof control, with the advantage of working under the stress shadow.

(f) Eco-friendly mining

For protection of surface structures during underground mining, actively involved in design of partial extraction by way of non-effective width of extraction, wide stall mining, which were successfully implemented in different underground mines for protection of surface structures under water bodies, railway, roadways etc.

g) Rock/Rope Testing/Rock Fracture Mechanics

Actively associated with testing, analysis of rock properties such as elastic constants, strength properties etc for better understanding of the rock sample behaviour for further rock mechanics analysis in Tunneling, Hydroelectric projects, coal and metal mines etc. In-house project to prepare a data bank on rock properties and further analysis is in progress. Data base was developed on detailed testing of dimensional stones for the first time in India.

h) Material Testing/Non-destructive Testing

Conducted extensive non-destructive testing of various mining machinery parts; winding equipment, ropes by non-destructive testing methods; Electro-magnetic and ultrasonic testing methods for better understanding of the condition of the equipment.

(I) Fly ash and bottom ash utilization for opencast and underground mines

Extensive laboratory and field investigations were conducted related to stability analysis for many opencast and underground mines with fly ash and bottom ash. Developed concept, design, field implementation for understanding stability of overburden dumps admixed with fly ash to suite the Indian mining conditions.

(J) Application of trans-disciplinary research for mining industry

At present the candidate is also involved in conducting/guiding research on applications of trans-disciplinary areas including EE, ECE, CSE, EIE to mining industry such as Power Quality improvement, Wireless Sensor Networks with IoT, Soft Computing techniques, TDR etc for improving safety in the mines. Experimental trial related to application of TDR and WSN systems for online slope monitoring in opencast mines for the first time in India was successfully conducted through sponsorship of the Ministry of Mines, Govt. of India through a Science and Technology project. Prof Jayanthu was actively involved in instrumentation for slope/strata monitoring through with suitable application of trans-disciplinary research for opencast and underground mines to improve the safety. At present conducting research also on applications of trans-disciplinary areas including EE, ECE, CSE, EIE to mining industry such as Power Quality improvement, Wireless Sensor Networks with IoT, Soft Computing techniques, TDR etc for improving safety in the mines. Associated with four patents provisionally field related to IoT, WSN, AI applications to mining industries”.

j) Development of new Curriculum/courses/syllabus for undergraduate and post graduate engineering students:

As Head and Professor of Dept of Mining Engg, introduced the subjects of present importance in rock mechanics for undergraduate and post graduate engineering students on subjects such as Slope stability Engineering, Ground Control Instrumentation, Strata Control Technology, Deep Seam Mining, Advanced Underground Coal Mining Methods etc. Actively involved in curriculum development of mandatory courses (Including value education, yoga, meditation etc for Engineering undergraduate students) as a member of All India Board-Undergraduate-Engineering and Technology (AIB-UG-E&T), All India Council for Technical Education (AICTE) syllabus committee.

k) Safe blasting practices:

Involved in various scientific studies since 1988, as scientist of CMRS, and continued research also awarded master's thesis from IIT BHU in 1990 on blasting studies with specialisation in drilling and Blasting. Presently conducting more than ten projects in various opencast mines for design of safe blasting practices to protect the surface structures and reduction of influence of ground vibrations induced by blasting in projects other than mining excavations ; such as design of safe blasting practices at Navi-Mumbai international Airport authority Limited (NMIAL) since January 2022.

l) Safety , Training, environmental pollution and health:

Due to excessive pollution due to dust and other harmful gases responsible for unsafe/polluted atmosphere in many mining areas, causing eye problems, the candidate is actively associated with Agreement For Research Interdisciplinary Collaboration Of Dry Eye Study And Its Impacts & Resolution In Mining Areas along with LVPEI (L V Prasad Eye Institute), Hyderabad Eye Research Foundation (HERF) of Hyderabad- Telangana, and Bhubaneswar-Odisha, and Biotechnology and medical department of NIT-Rourkela. During Covid-19-20-21-22 period, various international/national seminars, training programs etc were also conducted on TTIORA online in various Countries-Singapore, PNG etc, and at various industries on mine planning, blasting, slope stability etc.

Following technologies were developed as a scientist of CMRS, NIRM and as Professor at NIT Rourkela, for the first time in Indian/ international mining scenario in collaboration with, and acceptance/endorsement of DGMS, various mining industries/ institutions. These developed technologies commercially lead to completion of more than 120 projects worth more than Rs 10 Crores, and academically production of more than three PhD -Thesis of Trans-Disciplinary Translational Industry Oriented Research and Academics (TTIORA):

- i. **First time in international mining scenario**, unique Design of method of Simultaneous extraction of three contiguous seams when extraction of coal was at jeopardy with fatal accidents, unsafe practices leading to premature sealing of part of working panels in some mines, and successfully implemented
- ii. **First time in Indian mining scenario**, wide stall mining without backfilling was conceived, designed and implemented to protect surface structures.
- iii. **First time in Indian mining scenario**, underpinning in multiple seams with weak parting was conceived, designed and experimented successfully with the then team of CMRS.
- iv. **First time in Indian mining scenario**, Modified Slope Mass Rating was developed for empirical design of safe slopes in coal, copper, manganese, limestone, Diamond , Lead and Zinc etc opencast mines
- v. **First time in Indian mining scenario**, system of real time monitoring of slope movements was conceived, designed and implemented successfully with TDR, WSN, IoT, LoRa. Fog computing etc.
- vi. **First time in Indian mining scenario**, studies conducted for Power Quality Improvement in underground coal mining industries.
- vii. Non-Destructive rope, material testing, rock testing etc with innovative procedures was initiated with unique instrumentation, and applications in the field.
- viii. **First time in Indian mining scenario**, Concept was developed, lab tests conducted, numerical modelling, implementation in the field and monitoring field performance was scientifically conducted for utilisation of fly ash, as a total package in opencast coal mines.
- ix. **First time in Indian mining scenario**, Advance support optimisation studies conducted in stowed/back-filled panels of underground coal mines including the utilisation of fly ash and bottom ash in collaboration with CFARM-DST, Ministry of Coal, DGMS, and other mining industries etc.

CONTINUING EDUCATION PROGRAMME/SEMINARS/ COURSES / CONFERENCES CONDUCTED

• CONTINUING EDUCATION PROGRAMME:

As per recommendations of the 10th National Conference of Safety in Mines held at New Delhi 26-27th Nov, in every coal mining company, strata control cell shall be established at corporate and area levels within November, 2008. However, till now strata control cell could not be established in all the coal mining areas as required. Various subsidiaries of Coal India Limited and SCCL proposed to conduct the Continuing Education Programs for their officials including Adl.General Managers, Dy. General Managers, Managers, safety Officers, Ventilation officers, Field supervisors-Overmen, Mining Sirdars ,etc. in addition to the short term courses conducted as coordinator in the mining engg dept of NIT-Rourkela. Participated actively as Resource person, key note speaker etc of many continuing education programs, conferences etc in various academic and research institutes. Trained more than 200 mining engineers of various industries in Geo-mechanics, Strata Control Techniques, Instrumentation, ground behaviour monitoring etc. Following are some of the courses/technology exchange programs/workshops conducted in the mining industry

1. Technical Education Quality Improvement Program (TEQIP) Sponsored Workshop On Strata Control Techniques And Instrumentation In Coal Mines , Vocational Training Centre, Western Coalfields Limited, Maharashtra, 8 – 9 November 2008.
2. TEQIP Sponsored, Training Program on Strata Control Techniques And Instrumentation In Coal Mines At Management Development Institute, Bilaspur South Eastern Coalfields Limited 10 – 11 November 2008.
3. TEQIP Sponsored, Short-term course on “Geo-Mechanics and Strata Control in Coal Mines” held at Orient Area, Mahanadi Coalfields Limited, during December 12 - 13, 2008.
4. TEQIP Sponsored, Short-term course on Rock Mechanics and Strata Control In Coal Mines, Nalgundkar Institute Of Management-Ramagundam, SCCL, 28-29 December, 2008.
5. Training Program on Technical Update On Ventilation, Pressure Survey At Management Development Institute, Bilaspur, South Eastern Coalfields Limited, 26th – 28th October 2009.
6. Strata Control Problems in Coal Mines, Nalgundkar Institute of Management-Ramagundam, SCCL, 11-12 July, 2010.
7. Strata Control Problems in Coal Mines, Nalgundkar Institute of Management-Ramagundam, SCCL, 13-14 July, 2010.
8. Strata Control techniques in Coal Mines, Institute Of Management- Bilaspur SCCL, 20-21 November, 2010.
9. Ground Control Problems in Metal Mines, Zawar Mines –Training centre-HZL-Rajasthan, 27-28 Dec, 2013.

• SEMINARS / COURSES / CONFERENCES CONDUCTED / ASSOCIATION WITH JOURNALS AND PUBLICATIONS:

In addition to the above courses/workshops etc conducted in the field, following are some of the contributions in various capacity:

Sl No	Contribution	Course/Seminar	Organization	Period	Venue
1	Coordinator	Workshop on “Life skills development”	Hyderabad Psychological Association	20-21 January, 2007	N.I.T,Rourkela
2	Convener	National Seminar on Mining Technology – Present & Future, MINTECH07	Indian Mining & Engg Journal Forum	21-22 September, 2007	Bhubaneswar
3	Technical Advisor	2 nd National Conference on Computing, Communication And Sensor Network	Purushottam Institute of Engineering and Technology	October 29-30 st , 2011	Rourkela
4	Coordinator	<u>Short Term Course on Trends In Strata Control Techniques and Instrumentation For Enhancing Safety In Coal Mines</u>	Mining Engg Dept, NIT-Rourkela	July 28 - 31, 2008	NIT-Rourkela
5	Coordinator	<u>Short Term Course on strata control</u>	Mining Engg Dept,	Nov19 -	NIT-Rourkela

		<u>techniques and instrumentation for coal mines.</u>	NIT-Rourkela	22, 2009	
6	Chairman	<u>Conference on “Emerging Trends in Mining & Allied Industries”.</u>	Mining Engg Dept, NIT-Rourkela	February 2-3, 2008	NIT-Rourkela
7	Convener	<u>National Seminar on Mining Technology-Extraction, Beneficiation for Safe & Sustainable</u>	Indian Mining & Engg Journal Forum	7-8 May 2010	Bhubaneswar
8	Member, National Advisory Committee , and Editorial Board	National Seminar on Environment and Sustainable development in mineral industry and solid waste management,	Andhra University	14-15 March 2010	Vishakhapatnam
9	Co-Convener	National Seminar on Computing, Communication and sensor network, CCSN-2010,	Purushottam Engg College, and IEI-30-31 Oct, 2010	30-31 October, 2010	Rourkela
10	Co-Chairman, and member of editorial committee	Golden Jubilee Seminar On Mining Tech For Sustainable Development--Raipur-18-19 Nov 2011	Indian Mining & Engg Journal Forum	18-19, November, 2011	Raipur
11	Review Committee member	34th International Conference for safety in Mining Research Institutes (ICSMRI),	IIT, Kharagpur	Dec-2011,	Delhi
12	Review Committee member	Issue of TATA SEARCH Journal	M/s TATA	2010 and 2011	Jamshedpur
13	Chief Editor	National Seminar on Computing, Communication and sensor network, CCSN-2010,	Purushottam Engg College, and IEI-30-31 Oct, 2010	30-31 October, 2010	Rourkela
14	Member of editorial committee Since 2007 and Principal Consulting Editor since 2009	Indian Mining & Engg Journal	Indian Mining & Engg Journal Forum	2007 – Continuing	Bhubhaneswar
15	Member of the Organizing Committee	Intl Conference on Technological Challenges And Management Issues For Sustainable Development in Mining Industry (TMSMI 2011)	Mining Engg Dept, NIT-Rourkela	4-6 August, 2011	NIT-Rourkela
16	Course coordinator	Short Term Course On Recent Trends In Ground Control Techniques And Organization Of Strata Control Cell For Mines,	Mining Engg Dept- NIT-Rourkela-	Nov 22 - 25, 2012	NIT-Rourkela
17	Chairman and also as One of the Editors of the event	MINETECH'13 Workshop On Clean Mining Technologies: Extraction, Beneficiation, And Use,	IMEJ	May 3-4, 2013,	Bhubaneswar
18	chairman of Technical Session	Geotechnical Instrumentation For Monitoring Of Ground Behaviour In Underground And Opencast Mines, CCSN-2012 , International Conference On Computing, Communication And Sensor Network	Institution of Engineers (I), and PIET,	November 22-23 rd , 2012	PIET
19	Resource Person for Short Term course	Instruments And Manpower For Establishment Of Strata/ground Management Cell	NIT-Rourkela	22-25 Nov, 2012	NIT-Rourkela
20	Resource Person for Executive development program on land Acquisition and R&R Policy in mining industries,	Recent Trends In Evaluation Of Implementation Of R&R Policy For Coal Mining Projects In India– An Appraisal	NIT-Rourkela	31 st May 13 – 6 th June 13,	NIT-Rourkela
21	Resource Person for Short Term course- Executive development	<ul style="list-style-type: none"> • Longwall Mining – Face Equipment And Importance Of Slaving Operations • Machinery For Underground Mining 	NIT-Rourkela	22 - 28 Apr 2013	NIT-Rourkela

	program on availability and utilization of mining machinery in mines	• Thick Seam Mining Methods			
22	Resource Person in training program on recent trends in mining technology	Organization Of Strata Management Cell For Underground Coal Mines	, Western Coalfields Limited, Nagpur	15-17 Oct,12	Western Coalfields Limited, Nagpur
23	Member of organizing committee member	1 st International Conference On Microelectronics, Circuits& Systems, CCSN-MICRO -2014, International Conference On Computing, Communication And Sensor Network	PIET	11-13 July 2013.	Kolkata, India.
24	As Resource Person	Workshop on Prevention and Control of dust pollution	Mining Dept-NIT-Rourkela	2 nd Dec, 2014	NIT-Rourkela
25	Resource Person	Mine Management, Legislation and General Safety	Mining Dept-NIT-Rourkela	15th April to 25th April, 2014	NIT-Rourkela
26	Course coordinator	Instrumentation For Evaluation Of Ground Control Problems And Wireless Sensor Networks For Mines	NIT-Rourkela	Nov 27 - 30, 2013	NIT-Rourkela
27	Course coordinator	Ground Control Problems In Metal Mines		Dec 27-28,2013,	HZL-Rajasthan
28	Chief Guest and Resource Person in Safety management in underground coal and metal mines	Safety management in underground coal and metal mines	KLR engineering college, Palvancha, Telangana	Sep 14,2013,	KLR engineering college, Palvancha, Telangana
29	Co-chairman of organizing committee and Chairman of Technical sessions	Seminar on Sustainable Development in Mineral & Earth Resources	IMEJ and AKS University	June 21-22, 2014,	New Delhi, India.
30	convener	All India Seminar on Mining – Recent Advances, Challenges and Scenario Beyond 2015 during	IEI-in collaboration with NIT-Rourkela	November 8-9, 2014,	NIT-Rourkela
31	Convener	All India Seminar on “Slope Stability Issues In Opencast Mining And Civil Engineering” (SSIOCM15).	NIT Rourkela-IEI-CSIR-IMEJ	July 25-26, 2015	NIT- Rourkela
32	Organising Secretary	National seminar on “Energy Conservation in Mining & Mineral Industries for Sustainable Development “(EnconMining 2015)”	Indian Mining and engineering Journal	12-13 Sept 2015	Bhubaneswar.
33	Organizing committee Chairman	Regional Seminar on “Make in India Initiatives in Mining”	IMEJ in collaboration with AKS University	23.1.2016	AKS University-Satna,MP
34	Co-Chairman	5th International Conference on Computing, Communication and Sensor Network	International Association of Science, Technology and Management,	December, 24th-25th, 2016,	Kolkata, India
35	Organizing committee Chairman	2 nd National Seminar on sustainable development in mineral and earth resources	organized by Indian mining engineering journal	25-26 November 2017.	AKS University Satna,MP
36	Co-Convener (Technical)	All India Mine Surveyors’ Meet	Mining Engineers Association of India (MEAI)	12 - 13 May 2017	Hyderabad
37	Co-Chairman	6th International Conference on	Organized by	Decemb	Kolkata-India

		Computing, Communication and Sensor Network	International Association of Science, Technology and Management,	er, 30th-31st, 2017,	
38	Chairman	National Workshop on Sustainable Development of mineral Resources (SDMINER2018)	Indian Mining and engineering Journal	7-8 Apr 2018	Khazuraho-MP
39	Co-Chairman	Micro-2018-5th International Conference on Microelectronics, Circuits & Systems	Applied Computer Technology In association with: International Association of Science, Technology and Management	May, 19th-20th, 2018,	Bhubaneswar, India
40	National advisory Committee member	National Conference on Current Practices in Minign and allied Industries (CPMAI)	Govt Engg College, Keonjhar	6-7 October 2018	Keonjhar, Odisha
41	Organizing committee Member, Chairman-Technical Session, Guest Speaker	World Conference on Multidisciplinary Research & Innovation	Institute For Engineering Research and Publication (IFERP)	29-30 Decemb er 2018	Dubai
42	Organizing committee Member, Chairman-Technical Session	Second International Conference on Advanced Computational and Communication Paradigms(ICACCP-2019). Chairman of session:Electrical and Electronics Devices and Power Systems (Track-IX)	Sikkim Manipal Institute of Technology, IEEE	25-28 February 2019	Sikkim
43	Keynote speaker	National Conference Integrated development of Mines and Mineral based Industries with waste management – (IDMIWM-2018)-14-15 Dec2018-Bhubaneswar	Natural Resources Development Foundation (NRDF)	14-15 th Decemb er 2018	Bhubaneswar
44	Guest of Honour, Keynote speaker, and Resource person	Workshop on Recent Trends in Mining Engg and Safety	SIMTARS-Australia (Safety in Mines, Testing and Research Station) and Centurion University-Bhubanswar	4 th February, 2019	Centurion University-Bhubanswar
45	Organizing committee Chairman, Chief Editor	Workshop on Mining Technology for Safety	Indian Mining and Engineering Journal	16 th February, 2019	Asansol, West Bengal
46	Expert-Judge for evaluation of scientific work	17 th Chhattisgarh Young scientist Congress	PRSU, CG Council of Science and technology- Raipur	28 th February-1 st March 2019	Raipur , Chhattisgarh
47	Invited speaker, Resource person, member of Board of studies (BOS)	Workshop on recent trends in strata control technology for mines	GIET-Rajahmundry-Andhra Pradesh	8 th March, 2019	Rajahmundry-Andhra Pradesh
48	Coordinator	Short Term Course on Mine planning-Recent issues	NTPC	29 th June 2019-4 th July 2019	NTPC-Sundergarh
49	Coordinator	Short Term Course on Blasting technology-Latest trends	NTPC	8 th July 2019-	NTPC-Sundergarh

				14 th July 2019	
50	Keynote Speaker	2 nd International Conference on Future communication and Computing Technologies- (ICFCCT19)	IFERP	17-18 July 2019	Meerut-UP
51	Chairman-Technical Session	National Seminar on Sustainable development of mining industry-Present Scenario and Future Challenges	Mine safety and production Council and DGMS	20-21 September-2019	Hyderabad-Telangana
52	Chairman-Organising Committee-Chief Editor-and Technical Sessions, Guest of Honour	National Seminar on mining and Processing of raw materials for steel, cement and Power	IMEJ, and AKS University	21-22 September-2019	Hosapeta-Karnataka
53	Member Advisory Committee - and Chairman -Technical Session	National Conf. Recent Advances In Energy, Environment And Health Sciences	ITER-Siksha O Anusandhan	18-19 Oct 2019	Bhubaneswar
54	Member Advisory Committee, Keynote speaker - and Chairman -Technical Session	XVIII- International Conf. On Mineral Processing Technology-MPT-2019	NMDC	16-18 Dec2019	Hyderabad
55	Member of Organising Committee	National conference on Utilisation of fly ash in agriculture, forestry and other applications	CFARM	17-18 Dec2019	Hyderabad
56	Member of Steering Committee	National Conference on advances in Mining –AIM2020	CIMFR	14-15 Feb 2020	Dhanbad
57	Member of Organising Committee and Chairman -Technical Session	International Conference on Bioprocess for sustainable environment and energy, ICBSEE2020	NITRourkela	5-7 Mar 2020	Rourkela
59	Chief Speaker-Resource Person	Webinar on Trans-disciplinary translational research and academics for ground control in mining industries	KLUniversity	29 May 2020	Webinar-participants 150
60	Keynote Speaker-Resource Person	Webinar on AI GETTING USED IN IMPACT OF covid19 –Application of AI for awareness of COVID19.	IFERP	June 14, 2020	Webinar-participants 200
61	Resource Person	webinar on Instrumentation for study of ground vibrations induced by blasting in opencast mines- case studies	MGMI	June 14, 2020	Webinar-participants 200
62	Keynote Speaker-Resource Person	Webinar on Trans-disciplinary translational research and academics for ground control in mines	MREC-Hyderabad	July 14, 2020	Webinar-participants 200
63	Editor –in-chief IMEJournal Editor –in-chief IMEJournal	Recent advances in IT In Mining and Industries	IMEJ & AKS University	July 17, 2020	Webinar-participants 100
64	Editor –in-chief IMEJournal	Mines Safety in India	IMEJ & AKS University	July 20, 2020	Webinar-
65	Editor –in-chief IMEJournal	Raw material security of SAIL and Mining Trend	IMEJ & AKS University	July 27, 2020	Webinar-
66	Editor –in-chief IMEJournal	Sustainable development of Iron ore Mining	IMEJ & AKS University	July 31, 2020	Webinar-
67	Chairman-Session	1st International Conference on Multidisciplinary and Current Educational Research (ICMCER – 2020)	Mahachulalongkorn rajavidyalaya University, Thailand	30th & 31st July 2020	Virtual Conference
68	Member –Board of Chairman	Micro2020: 7th International Conference on	IEEE(EDS), Delhi Chapter	25th-26th July	Virtual Conference

		Microelectronics, Circuits and Systems		2020.	
69	Member of Advisory Committee and Chairman -Technical Session	International Conference on "Recent Practices in Core Industries & Its Impact on Economy & Environment" RPCIIEE-2020	GEC-Keonjhar	7th, 8th & 9th August, 2020.	Keonjhar
70	Chief speaker	Urgent Need Of Transdisciplinary Translational Industry Oriented Research For Sustainable Mining	jointly organized by IEI-MN-NITR	23.9.2020	IEI-Rourkela-Webinar
71	Resource person	Opportunities for Higher Education and Research in Mining Engineering and Interdisciplinary areas	Jointly organized by –NIT-K-Surathkal and Australia	25-26 Sept2020	Webinar
72	Chief speaker	Advanced trends in mine planning and design vis a vis computer applications	Aryan Institute of Technology-Bhubaneswar (online)	07.10.2020	Webinar
73	Co-Chairman, and speaker	9 th International Conference on Computing, Communication and Sensor Network	Applied Computer Technology, Kolkata,	17th and 18th October, 2020	Kolkata, India Webinar
74	Editor-in-chief IMEJournal, Judge for evaluation	National mining Day	IMEJournal, and AKS University	31 st October to 2 nd Nov 2020	Webinar
75	Chief speaker	Transdisciplinary Translational Industry Oriented Research in rock Engineering for Mining Industries	jointly organized by ISRM-TT, and CSCMRS-New Delhi (online)	12.11.2020	Webinar
76	Panellist	Emerging technology on data mining	Knowledge Lense ,Microsoft along with Dun & Bradstreet	17.12.2020	Webinar
77	Panellist	35 th Indian Engineering Congress (Best Paper Award)	Institution of Engineers-India	18.12.2020 to 20 th December 2020	Webinar
78	Keynote Speaker	International Conference on Opencast Mining Technology and Sustainability (ICOMS)	IIT-BHU, and Northern Coalfields Limited	22-23 January 2021	Offline-cum-Online
79	Panellist	Scopes and Opportunities of Transdisciplinary Research in Mining Sector	The Institution of Engineers (India) Under the aegis of Mining Engineering Division Board	29 Jan 2021	National Webinar
80	Resource person	International webinar on geotechnical Engg (GEOLIVE-2021)	NIT-Jalandhar, LPUniversity Indian Geotechnical Society (IGS)	21-28 February 2021	International webinar
81	Invited speaker	Teacher's Role In NEP-2020 Implementation (https://forms.gle/ckBFR7goDfbffa5b7 https://www.aksuniversity.ac.in/live/)	NITI AYO, Bhartiya Shikshan Mandal, and AKS University	01 March 2021 @3-4 pm	National webinar
82	Invited speaker	Cisco thingQbator -Scope for Internships Vis-à-vis NEP2020	Cisco –Bangalore	2 nd	Webinar

				march 2021	
83	Invited speaker	National Webinar on National Mineral Policy-2019- Way Forward	MEAI, Hyderabad	28 th and 30 th March 2021	National webinar
84	Resource person	Faculty Development Program -Mining Industry , Development And Technology'2021	JBIET-Hyderabad	23-28 April 2021	National webinar
85	Resource person	“Application of IoT and Smart Sensors in Mining”	ESCI-Institution Of Engineers- Hyderabad	15 – 17 July, 2021	Online Continuing Professional Development Programme
86	Keynote speaker	National Conference-Modern technological applications in Mining and mineral Exploration	AMET University - Chennai	20 & 21 July 2021	National Virtual Conference
85	General Chair and Editorial Board member of Proceedings	10th International Conference on Computing, Communication and Sensor Networks: CCSN2021	Applied Computer Technology, Kolkata,	2nd and 3rd October, 2021	Offline-cum-Online
86	Invited speaker	Latest trends in opencast mining vis a vis Safety and stability	Ramco cements- Ravirala/Jayanthipuram limestone Mines	12 th October 2021	Offline-cum-Online
87	Guest of Honour, and resource person	All India seminar on application of artificial Intelligence to mineral sector	MEAI- at IEI- Hyderabad- Telangana	21 and 22 October, 2021	Offline-cum-Online
88	Chairman -Technical Session, and Guest of Honour	International Conference on GEOM-INTECH21,	Bhubaneswar - Odisha	October 23-24, 2021	Offline-cum-Online
89	Invited speaker	Safe blasting practices for protection of surface structures	Vedanta – Ostapal chromite Mine	21 Nov 2021	Offline-cum-Online
90	Chief Guest and Resource person	ATAL Academy Faculty Development Program on “Mining & Mineral Processing: Advances in Technology & Sustainable Challenges”	C.V. Raman Global University Odisha	December 14 to 18, 2021	Virtual Platform
91	Chairman of Organising committee, and Chief Editor	National Workshop on Sustainable Development of minerals and Coal Resources (SDMINER2021)	Indian Mining and engineering Journal, and AKS Unversity	17-18 December 2021	AKS Unversity- Satna-MP
92	Panellist and Resource person	Slope Failures, Recent Trends In Design And Monitoring Of Slopes In Opencast Mines Vis-Avis Urgent Need Of Scientific Studies	Mahanadi Coalfields Limited	17-18 February 2022	Virtual Platform for E1-E4 grade officials of MCL
93	Resource person	Executive development Program on Mining technology, safety and environment management	NIT-Rourkela	7-11 March 2022	NIT-Rourkela
94	Chief Guest, Keynote speaker and Resource person	Faculty Development Programme On “Rock Mechanics Application in Mining and Allied Industries”	Dr. T. Thimmaiah Institute of Technology, Oorgaum, Kolar	21st March – 26th March,	Virtual Platform

			Gold Fields – Karnataka	2022	
95	Chairperson of Technical session, and Author/Speaker	9 th Asian mining congress and exhibition	MGMI-Kolkata	4-7 April 2021	Kolkata
96	Invited Speaker	Urgent need of Transdisciplinary Translational industry oriented research and academics for improving safety in coal mines vis-à-vis latest technological advancements	Coal India Limited – Head quarters	6 April 2022	Offline at CIL-HQ-Kolkata, and online with CMPDIL-Ranchi
97	Guest of Honour, and Plenary Talk for Inaugural function	International Conference on ‘Innovative Researches in Engineering & Technology	BIT-Gorakpur - Dr. APJ Abdul Kalam Technical University, Lucknow and Engineering Council of India, New Delhi	21 st April, 2022	Offline at BIT-Gorakpur, and online on https://us02web.zoom.us/j/85718940596?pwd=dVdITGQ2T1ZQbWpTQUJzZHdZMzR5UT09
98	Guest of honour, Invited speaker	Workshop on Net Zero, Vision Zero & Social Security	KIIT Centre of Excellence on Occupational Safety and Health, & Indo-German Focal Point India	22 April 2022	Hybrid mode online-offline at KIIT Centre – Bhubaneswar -ODISHA
	Guest of honour, Invited speaker	Scope For Further Development Of Safety Culture In Opencast Coal Mines	MCL-Head Quarters- Burla-Odisha	28 April 2022	Hybrid mode online-offline
99	Invited speaker	Workshop on Latest Trends In ICT Applications For Mining Industries Vis-À-Vis Industry Oriented Transdisciplinary Research For Improved Safety	CCL- Ranchi	3.6.22	Hybrid mode online-offline at CMD Office-Ranchi- https://call.lifewisecloud.com/14726315
100	Invited speaker	Seminar/ Training Program on Rock Blasting In Opencast Mines And Excavation For Surface Construction Vis-à-vis Scope For Improvements In Safety And Performance At NMIAL Site Navi Mumbai	NMIAL –Navi Mumbai	10.6.22	Hybrid mode online-offline at Conference hall-Adani group-Navi Mumbai- https://meet.google.com/qdt-erve-ndo
101	Session chair and invited speaker	3rd International Conference on Bioprocess for Sustainable Environment and Energy -Talk on “Net-zero issues for sustainable environment in mining industries vis-à-vis anticipated impacts and mitigation measures”	NIT-Rourkela	20-24 June22	Hybrid mode
102	Board of Chairman, Organising committee	9 th International Conference on ‘Microelectronics, Circuits and Systems’, Micro2022	Applied Computer Technology, and International	25 th -26 th June 2022	University College of Technology, Regional

			Association of Science, Technology and Management		college for Education , Research and technology , Jaipur-Rajasthan
103	Invited speaker	Workshop/ Training Program Latest trends on design of slopes and slope monitoring in Opencast Mines	NTPC-Taliapali Opencast mines - raigarh	2.7.22	Hybrid mode online-offline - Adani group-Navi Mumbai- https://meet.google.com/oze-zjic-mar
104	Invited speaker	Workshop/ Training Program on Modern trends of Blasting technology In Opencast Mines	Garepalma 4/7 Opencast mines-Sarda Energy and Minerals Limited-Raigarh	3.7.22	Hybrid mode online-offline - https://meet.google.com/rsa-cgwg-bsq
105	Invited speaker	Workshop/ Training Program on Latest trends in strata control technology In underground and Opencast Mines	Adriyala project office –SCCL-Telangana	15.7.22	Online and offline- https://meet.google.com/tij-ahvc-pfv
106	Invited speaker	Workshop/ Training Program On Latest Trends In Ground Control Techniques And ICT Applications For Mining Industries Vis-À-Vis S&T Studies At Balaghat Mines-MOIL For Improved Safety	Balaghat mine-MOIL) Hybrid mode at Projet office-Balaghat-Madhya Pradesh-	17 July 2022	Online and offline- https://meet.google.com/abs-vgwx-phf
107	Keynote Speaker	Faculty Development Program on “Outcome Based Education (OBE)”	Institute For Engineering Research and Publication	25 to 31.7. 2022	Virtual
108	Invited speaker	Workshop on Urgent Need Of Transdisciplinary Translational Industry Oriented Research and academics Vis-a-Vis NEP2020	National Institute of Technology-Raipur	3 August 2022	Online and offline- https://meet.google.com/mez-zkhj-hyx
109	Resource Person, Invited speaker	NATIONAL Mining Conclave – Presented on Design Of Safe Blasting Practices In Opencast Metal Mines – Case Studies	Mines Safety Association Karnataka	12-13 Aug22-	Online and offline
110	Invited speaker	Scope of Trans-Disciplinary Research Applications Of Computer Science and Engineering For Improvement Of Safety In Mines	AKS University-Satna	12 Sept 22	Offline at IT-Department of AKS University
111	Session chair, Expert Speaker, Board of chairman	Trans-Disciplinary Research Applications Of Communication And Sensor Networks For Improvement Of Safety In Mines, CCSN-2022 , International Conference On Computing, Communication And Sensor Network	Utkal University-Bhubaneswar - Odisha	September 23-24 , 2022	Hybrid mode - Online and offline- at Utkal University
112	Panellist and Resource Person	Industrial Decarbonisation Summit-A Road Map To NET-ZERO 2030 On i) Eco-Friendly Mining, And ii) Net-Zero Issues Vis-À-Vis Odisha Mining Industries	The Associated Chamber of Commerce & Industry of India (ASSOCHAM) in collaboration with	30.9.2022	Hybrid mode - Online and offline

			State Pollution Control Board (SPCB), Govt. of Odisha 30th September 2022		
113	Co-Chairman	Mining YOUTH Conclave	Indian Mining & Engineering Journal, supported by Ministry of Coal-GoI	16 th Octr'22	New Delhi
114	Keynote speaker	13 th National Safety Conclave	OSSOCHAM, OSPCB	11-12 November 2022	Bhubaneswar
115	Resource person – invited talk	All India Seminar - Design Of Blasting Parameters To Minimize The Environmental Hazard Of Earth Movement Due To Large Scale Production Blasting – A Case Study	MEAI-SCCL	19Nov 22-	-Kothagudem - Telangana
116	Chairman- Technical session , Guest of honour	National seminar on challenges and strategies in coal mining and transformation to industry 4.0	Mahanadi coal fields , Sambalpur	26 th November 2022	Sambalpur , Odisha
117	Expert , Chief speaker	National Workshop on “Urgent need of transdisciplinary translational industry oriented research and academics Vis A Vis NEP2020”	Regional Reference Standard Laboratory (RRSL), Ahmedabad Department of Consumer Affairs, Event no. :2516 382 5113 Pw:0312 Video Add. :25163825113@doca.webex.com...	3 rd December 2022	Hybrid mode – online platform https://docs.google.com/document/d/1mRZwllu3aVTd9zZfxsDGOpTw2pIEw.1/edit?usp=sharing ID: 782 4197 4990 Passcode: 1234
118	Resource person – invited talk	Transdisciplinary translational industry oriented research and academics Vis A Vis Mineral Rich states	Centurion University –Bhubaneswar -India		https://us04web.zoom.us/j/78241974990?pwd=1mRZwllu3aVTd9zZfxsDGOpTw2pIEw.1 ID: 782 4197 4990 Passcode: 1234
119	Speaker	Latest Trends In Deep Sea Mining For Sustainable Utilization Of Bio-Resources-Indian perspective	Asia-Pacific Deep Sea Mining Summit 2022 Singapore	12 – 13 December, 2022	www.asia.deepeace-mining-summit.com Hybrid mode online-offline. https://us06web.zoom.us/j/84159666027?pwd=Mng5dm4xemgvNnZyWmhQcFZlVXJjUT09
120	Co-Convenor and Keynote Speaker	National Bioengineering Conference-NBC-22	National Institute of Technology-Rourkela	22-23 December 2022	Hybrid mode online-offline - National Institute of Technology-Rourkela

121	Chief Guest and Panelist	Five-Day Faculty Development Programme On Recent Advancements In Mine Safety	Department Of Mining Engineering, GIET	January 30 – February 03, 2023	GIET-Andhra Pradesh
122	Chief Guest and Resource person	Programme on “Information Technology for Earth Science Community” Date:..	Department Of Mining Engineering	02nd - 10th Feb. 2023	AMET University- Chennai – Hybrid mode
123	Chairman of session and Panellist	International Hybrid Conference on Outcome-Based Education	Mahatma Gandhi University-Kerala	Feb 10-12, 2023	Zoom Meeting https://us02web.zoom.us/j/85611852252?pwd=dIU1T1BOR3IUM2RFVjZjUUFQ4SlZ5dz09
124	Patron, Editor-in-chief of IME Journal	Mining & Engineering EXPO & Conference	IMEJ, and AKS University, Satna (MP).	25-26th February, 2023	Satna (MP).
125	Invited speaker	Urgent need of Transdisciplinary Translational Industry Oriented Research and Academic Applications (TTIORA) in Mineral rich states and sustainable development	CMPDIL- Ranchi	27 Feb’23	Hybrid mode online, and offline –at CMPDIL Ranchi
126	Invited speaker	Scope of Transdisciplinary Translational Industry Oriented Research and Academic Applications (TTIORA) in Affiliated colleges in Mineral rich states	ABIT-Bhubaneswar	3 march 2023	Hybrid mode online, and offline - Bhubaneswar
127	Resource person	Executive Development Program on Disaster management and Emergency Preparedness Plan for mining sector, Best Practices To Avoid Accidents Due To Explosives And Blasting In Opencast Mines	NIT Rourkela	17-21 April 2023	NIT Rourkela
128	Chairman-technical session and speaker	6th Pure Earth Environment Conference (PEEC)	Jawaharlal Nehru Architecture and Fine Arts University, Hyderabad.	29th April 2023	both virtual & physical modes
	Judge	18th Chhattisgarh Young Scientist Congress (* Biggest Scientific Program of Our State)	Chhattisgarh Council of Science and technology, and Pt. Ravishankar Shukla University, Raipur	May 3-4, 2023	Raipur
129	Speaker/Resource Person	Environmental Impacts And Mitigation Measures For The Development Of Large Opencast Coal Mine Project In National Workshop On Technological Emergence For Clean NBS And Air	NIT Rourkela	29 th May- 2 nd June23	Hybrid mode online, and offline
130	Co-Author	Reopening Of Churi Underground Coal Mine Of Coal India After Fire, By Evaluation Of Underground Atmosphere; in 29 th World Mining Congress	Brisbane, Australia	26-29 June20 23	Brisbane, Australia
131	Invited talk-Resource person	Challenges Of Underground Coal Mining- Past, Present &Future	CCL-HQ	5 th June23	Ranchi
132	Panellist, and	New mining Methods-Strata control	Coal India	6 th	New Delhi

	resource person	techniques Underground coal mines. Conference and exhibition on Underground coal mining technology	Limited, Ministry of Coal	June23	
133	Invited talk-Resource person	Scope Of Transdisciplinary translational Industry Oriented Research And Academics In Mineral Rich States Vis-À-Vis Underground Coal Mining	Coal India Limited,	26 th June23	CIL-Kolkata
134	Editor (Ravi Kanth A, Singam Jayanthu, Sultan Ali)	Edited Book : Transdisciplinary approaches to healthcare solution during pre/post-COVID-19. ISBN (10): 1-5275-5094-X , ISBN (13): 978-1-5275-5094-0	Cambridge Scholar Publishing-UK	Edited Book-Under Publication	Cambridge Scholar Publishing-UK
135	Invited talk-Resource person	Brain storming session and seminar on Safe Blasting practices in opencast mines for protection of structures	Srirampur Area, Singareni collieries co Ltd	10 August 2023	http://meet.google.com/hof-fuea-kim . Dual Mode. Conference hall-GM-SRP Area-SCCL
136	Guest lecture	Seminar on Recent Trends In Mining Technology With A Vision Of Nep2020 & G20 Presidency	Govt Polytechnique Institute-Bhadradri Kothagudem-Telngana	15August2023	Dual Mode. Conference hall-Govt Polytechnique-Kothagudem
137	Guest lecture	Modern trends in geotechnical studies for design of stable slopes in opencast mines, Strata control technologies meeting challenges of Deep underground coal mines, and latest trends in blasting technologies for protection of structures.	Corporate Office, Singareni collieries co Ltd	16 August 2023	SAKARA Conf hall-SCCL Hq-Kothagudem- http://meet.google.com/hof-fuea-kim . Dual Mode.
138	Invited talk	Recent Developments In Blasting Technologies For Improvement Of Safety In Rock Excavations, In Two Days Seminar	MEAI, and Mallareddy Egg college-Hyderabad	19-20 August 2023	Mallareddy Egg college-Hyderabad
139	Invited speaker	Royal charter in India vis-à-vis institution of engineers (How To Promote General Advancements Vis-À-Vis Net Zero Issues In Mining Sector)	Royal Charter day - 7 PM @	9th September 2023	IEI-Rourkela chapter – Dual mode
140	Resource person	Applications Of Blockchain Technology In Mining Industry- 27th September 2023 Application Of Block Chain Technology In Rural Sustainable Development With Special Reference To Andhra Pradesh	Department of Science & Technology sponsored TEDP-	5-28 Nov2023	Sri Ramachandra College of Engineering-Eluru-Andhra Pradesh-Dual mode
141	Invited speaker	Latest trends in design of slopes and slope monitoring in Opencast Mines Vis-à-vis Trigger Action response plan (TARP)	Eastern Coalfields Limited, a subsidiary of Coal India limited	16.9.23	Rajmahal Mines-Guest house –ECL-Dual mode
142	Board of Chairman/Guest of honour	12 th International Conference on Computing, Communication and Sensor Networks (CCSN2023)	Applied Computer Technology, and	Oct 14-16, 2023	Mumbai

			International Association of Science, Technology and Management		
143	Keynote speaker	International Conf on Advanced Technology In Exploration And Exploitation Of Minerals	MEAI –Jodhpur-India	12-14 Jan 2024	Jodhpur-India
144	Patron, Chief editor, Keynote speaker, Author	International Conference on On Safe & Sustainable Mining Technologies (ICSSMT24) and Mining EXPO on 19th Feb 2024	IMEJ-AKS University-Satna https://www.youtube.com/live/SJHn4Z_E5P8?si=2GKS6ngd4uhZU7ub	19-21 Feb24. https://www.miningexpo2024.satna.com/	Satna-India https://meet.google.com/eeb-gbak-oea
145	Invited speaker	National Seminar on Optimization of Resources in Opencast & Underground Mining- presented on A Successful Field Trial On Reclamation With Admixture Of Overburden Material With Fly Ash In Surface Mines – Geotechnical Studies	Engineering Staff college of India – Hyderabad-IEI	28 Feb to 1 march 2024	ESCI – Hyderabad, hybrid mode- https://nrchander.webex.com/nrchander/j.php
146	Invited speaker, resource person along with Mr Vijay Kumar IAS-Principal secretary-Telangana state	Heat Islands In Coal Mining Areas In India And Control Measures	Central Coalfields Limited	16 march 2024	Hybrid mode- https://meet.google.com/fnh-wfar-ehf
147	Invited speaker, resource person	Workshop on Technological advancement in Mining and Infrastructure	MEAI-Bengaluru	2 nd March 2024	Bengaluru
148	Advisory Committee Member and Keynote Speaker	Recent Trends In Applications Of Trans-Disciplinary Translational Industry Oriented Research And Academics - International Conference- RTTEAS	Dr. T. Thimmaiah Institute Of Technology	May 23-24, 2024.	Kolar Gold Fields – Karnataka
149	Resource person in Short Term Course	Applications Of Machine Learning For Improvement Of Safety In Mining Industries, Short Term Course on Machine Learning Applications-2024	Computer Science and Engineering Department, NIT Rourkela	27-31May 2024	Hybrid Mode https://meet.google.com/wsw-bzms-zfy
150	Invited speaker	Workshop/Training Program on “Recent Trends in Slope Stability Assessment and Monitoring in Opencast Metal Mines for Improving Safety”	SRRMM-Manganese Opencast Mines Area-Vijayanagaram-Andhra Pradesh	10 th June 2024	Hybrid Mode https://meet.google.com/iyx-hweq-atn
151	Plenary speaker	Need Of Trans-Disciplinary Translational Industry Oriented Research Applications In Mining Industry For Improvement Of Safety	International Experts Meets on Applied Science, Engineering and Technology (IEMASET-2024), which will be held during June 24-25, 2024 as a Virtual	June 24, 2024	Hybrid Mode United Arab Emirates (UAE) https://meet.zoho.in/MMjPVFfg MyMeeting ID: 376641321 Pw: Ew23mX

			Conference.		
152	Chief speaker and Guest of Honour	Environmental and Stability Challenges in the Andaman and Nicobar Islands vis-a- vis Heat islands	World Environment Day 2024- Institution of Engineers (India) (ANSC)- Port Blair. And felicitation of PadmaShree K Challammal	27 June 2024	Hybrid Mode Port Blair - Andaman https://meet.google.com/apy-bedy-wdm
153	Chief Speaker/Coordinator	Part-1: 6 July24: Design of dump and bench slopes in Opencast Mines Part-2: 6 July24: Monitoring of dump and bench slopes in Opencast Mines and TARP	Workshop on slope stability in opencast mines	6-7 July 2024	Kaliapani Chromite Ore Mines- Balasore Alloys Ltd Hybrid Mode: https://meet.google.com/phv-etks-xtx
154	Invited Speaker	Leveraging Artificial Intelligence For Enhanced Mining Operations Via-A-Vis Slope Stability Analysis	AICTE Three days seminar on Advance computing (Super computing , AI, Quantum Computing)	25-27 July2024	Bhubaneswar - Odisha
155	Invited Speaker	Recent Trends of AI-Enabled Technologies to Improve Safety vis-a-vis Transdisciplinary Research & Academics for Mining Industries	IIT-Banaras Hindu University-Varanasi	9 August 2024	Mining Engg Department- IIT-BHU-Varanasi
156	Expert Lecture	Need of Transdisciplinary Translational Industry Oriented Research and Academics (TTIORA)"	MNNIT-Allahabad-Prayagraj	12 August 2024	Hybrid Mode- Civil Engg Dept- MNNIT-Allahabad-Prayagraj
157	Expert Speaker-Resource person	Applications Of Time Series Forecasting In Mining Industries Vis-À-Vis Transdisciplinary Industry Oriented Research -National Workshop on Crisp and Fuzzy time series forecasting Using Deep learning techniques-CTF SFDL-2024 (25-29 Sept 2024)	NIT-Rourkela	29 September 2024	CSE-NIT-Rourkela <i>Hybrid Mode-</i> https://meet.google.com/uja-iivv-dzv
158	Coordinator-Expert speaker	Seminar on Design And Implementation Of Safe Blasting Practices In Opencast Limestone Mines	My Home Industries - Telangana	5 Oct 2024	Hybrid mode- https://meet.google.com/yvi-ecxf-szm
159	Coordinator-Expert speaker	Seminar on Design Of Stable Slopes And Monitoring Of Slope Movements In Opencast Limestone Mines	KCP cements- Andhra Pradesh	7 Oct 2024	Hybrid mode- https://us06web.zoom.us/j/81175741534?pwd=QWlIaxbaWTl6fjAEBj2cPb9udGaR42.1
160	Expert Speaker-Resource person	Faculty Development Program on 'OBE2024' - Industry Expectations From	SLIET - Punjab	21st to 25th Oct.	Hybrid mode- https://meet.google.com/mjh-

		Outcome Based Education(OBE) – Vis-A-Vis- Mining Sector		2024 on 23 Oct24)	ikps-fhb https://www.youtube.com/live/Si3PuBbJprQ?si=og6XCFn1mXf8FU
161	Keynote Speaker	Challenges And Issues Of Carbon Sequestration For Sustainable Development Of Un-mineable Coal Seams In India, International Conference on Biological Innovation, Technology, Engineering and Science (BITES)	NIT - Rourkela	18-20 Dec 2024	NIT - Rourkela
162	Keynote Speaker	Importance Of Consciousness On Value And Ethics In Higher Education Institution presented in	International Conf. on Consciousness	18-29 Dec2024-	Central Sanskrit University, Puri, Odisha
163	Keynote speaker-Resource person	Modern Trends In Design And Monitoring Of Bench Slopes In Opencast Mines Vis-À-Vis Dimensional Stones -Workshop On Slope Stability Problems In Opencast Granite Mines	DGMS-Hyderabad region and Granite Owners association-Ongole – Andhra Pradesh	20 Dec 2024	Ongole, Andhra Pradesh
164	Patron, keynote speaker	Role of Trans-Disciplinary Translational Industry Oriented Research for Improvement of Safety in Mining	International Conference on Safe and Sustainable Mining Technologies–	8-9th January ,2025	LYFE Hotel-Bhubaneswar
165	Co-Convenor, and Keynote speaker	<ul style="list-style-type: none"> i. Modern Trends of Trans-Disciplinary Research For Design And Monitoring Of Slopes In Mines Vis-À-Vis Trigger Action Response Plan ii. Application of Slope Mass Rating for Assessment of Stability of Slopes in Jointed Rock Masses of Opencast Mines in India iii. Characterization of Overburden Particulate Dump Yard in Opencast Coal Mines- Case Studies iv. Development of Machine Learning Models for Prediction of Dump Slope Failures in Opencast Coal Mines v. Evaluation of blast design as a mitigative measure against ground vibration based on numerical modelling- A case study 	All India Seminar on Slope Stability of Particulate Dump Yard and Industrial Focus of Interest (SSPDBAI-2025	11th January , 2025	Institution of Engineers (India, and Department of Earth Resources-NIT Rourkela
166	Resource Person, Co-Author	Shield Support and Strata Behavior Vis-A-Vis Geotechnical Challenges in Longwall Mining in Inida: A Case Study. Conferred with <u>Best Paper Award</u>	International Conference on Recent Innovation And Development In Material Science And Engineering Fields (RIDMSEF) ,	5th-6th March- 2025.	National Institute of Technology, Rourkela (SN 2- on 5.3.25 during 2.55 - 4.15 PM Hybrid mode: https://meet.google.com/yec-ifig-eag

SOME SALIENT PUBLICATIONS IN INTERNATIONAL/NATIONAL JOURNALS/PROCEEDINGS OF CONFERENCES/SEMIANRS

International Journals

1. **Jayanthu, S.**, T. N. Singh and D. P. Singh, 2004, Stress distribution during extraction of pillars in a thick coal seam., *Rock mechanics and rock engineering* 37.3 171-192. **(SCI & Scopus)**
2. Tripathi, D. D., & **Jayanthu, S.** (1996). Numeric techniques to improve the fire control measures during thick seam mining. *Journal of mines, metals and fuels*, 44.
3. D Acharya, Mohanty P, and **S Jayanthu**, 2011, Optimization of routing delay for pervasive sensor network using fuzzy logic, *Intl Journal of Computer Engineering And Computer Application*, ISSN 0974-4983, IJCECA, January, 2011, Vol -6, pp 1-9.
4. A. Patri, A. Nayak, and **S. Jayanthu**, "Wireless communication systems for underground mines – A critical appraisal", *International Journal of Engineering Trends and Technology (IJETT)*, vol.4, no.7, pp.3149-3153, July 2013, <https://www.researchgate.net/publication/263570916> Article
5. Guntha Karthik, **Dr. Singam Jayanthu** Atheequr Rahman and Rammohan.P "Utilization of Mobile Communication in Open Cast Mines" published in *International Journal of Computer Science and Mobile Computing*, pg.373 – 378, Volume 3, Issue 7 July 2014. ISSN 2320–088X
6. **Singam Jayanthu**, Guntha Karthik and Chandra Mohan (2015), "Monitoring of Environmental Hazards Vis-À-Vis Slope Stability and Landslides by Advanced Wireless Communication –A Critical Review" published in *Australian Journal of Applied Mathematics Journals*, volume.1, pp-18-25.
7. H. B. Sahu, N. Prakash, and **S. Jayanthu**, "Underground mining for meeting environmental concerns—a strategic approach for sustainable mining in future", *Procedia Earth and Planetary Science*, vol.11, pp.232-241, Elsevier, January 2015, <https://doi.org/10.1016/j.proeps.2015.06.030> Article **(Scopus)**
8. Guntha Karthik, **Singam Jayanthu**, Bhushan N Patil, R.Prashanth(2016) "Laboratory and Field Investigations on XBEE Module And its Effectiveness for Transmission of Slope Monitoring Data in Mines" *International Journal of Electrical and Electronics Engineers (IJEEE)* ISSN(O)-2321-205 ISSN(P)-2321-2047 Vol.8 pp-349-355.
9. Prashanth Ragam, **Singam Jayanthu**, Guntha Karthik(2016) "Wireless Sensor Network For Monitoring of Blast-Induced Ground Vibration" *International Journal of Electrical and Electronics Engineers (IJEEE)* ISSN(O)-2321-205 ISSN(P)-2321-2047, Vol.8, pp-341-348.
10. Guntha Karthik and **Singam Jayanthu**(2017) "Integration of TDR based Radio Communication System for Monitoring of ground movements in Open-pit Mines" Published in "Disaster Advances," Volume No. 10(9), Pages 34-43 **(Scopus)**.
11. Guntha Karthik and **Singam Jayanthu**(2018) "Review on Low-Cost Wireless Communication Systems for Slope Stability Monitoring in Opencast Mines" published in *International Journal of Mining and Mineral Engineering* Vol.9, No.1, pp.21–31. **(Scopus)**.
12. Sukanth.T, **S. Jayanthu** and A. Jayalaxmi, 2015, Power Quality Improvement in Underground Mining, *International Journal of Advanced Research in Electrical, Electronics and Instrumentation Engineering*, Vol. 4, Issue 6, June 2015. ISSN (Print) : 2320 – 3765 ISSN (Online): 2278 – 8875

13. **Singam Jayanthu** and Guntha Karthik (2018) “Evaluation of Stability Of Cutslopes in Open Cast Metal Mines using Numerical Modelling and Field Monitoring” Published in Modelling, Measurement and Control Vol.79, No.1, pp.12–15 (**Scopus**).
14. Guntha Karthik and **Singam Jayanthu**(2018) “Selection of Suitable Location and Method for Installation of TDR in Opencast Mine-An Experimental Approach” published in Mathematical Modelling of Engineering Problems Vol. 5, No. 3, September, 2018, pp. 256-259.(**Scopus**).
15. Guntha Karthik and **Singam Jayanthu**(2018) “Quantification of Cable Deformation using TDR-Experiments” published in European Journal of Electrical Engineering, Vol.19, pp.209-219. (**Scopus**).
16. D.K. Yadav, **S. Jayanthu**, S.K Das, S. Chinara, P. Mishra“A Critical Review on Slope Monitoring Systems with a Vision of Unifying WSN and IoT”,IET Wireless Sensor Systems”, vol. 9, no. 4, pp. 167-180,10.1049/iet-wss.2018.5197,2019. (**ESCI & Scopus**)
17. **Singam Jayanthu** and Rammohan Perumalla , 2016, Soft Computing Techniques For Major Roof Falls In Bord And Pillar In Underground Coal Mines Using Mamdani Fuzzy Model, International Journal of advanced research in science and engineering Vol.5 Issue No9 -2016, pp-172-180.
18. D. K. Yadav, G Karthik, Singam **Jayanthu**, S K Das, and SK Sharma, 2020 “Studying Time Domain Reflectometry to Predict Slope Failure in Open-Cast Mines” Journal of mining Science, vol. 56, no.5, pp. 760-770, Accepted 11 Sept , 2020. (SCIE, IF-0.33) DOI: 10.1134/S1062739120057093. (**SCI & Scopus**)
19. Yadav, D. K., Mishra, P., **Jayanthu**, S., & Das, S. K. (2021). Fog-IoT based slope monitoring (FIoTSM) system with LoRa communication in open-cast mine. IEEE Transactions on Instrumentation & Measurement, 70, 1-11. (Accepted, IF- 4.016) (**SCI & Scopus**)
20. D.K. Yadav, P. Mishra, **S. Jayanthu**, S.K Das, and S K Sharma “Application of IoT-Fog based real-time monitoring system for open-cast mines—A survey” IET Wireless sensor systems, 10-Feb-2021. <https://doi.org/10.1049/wss2.12011>. (**ESCI & Scopus**)
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25. Arun Kumar Sahoo; Debi Prasad Tripathy; Singam Jayanthu. "Application of machine learning techniques in slope stability analysis: A comprehensive overview". Journal of Mining and Environment, , , 2024, -. doi: 10.22044/jme.2024.13881.2583 (**ESCI & Scopus**)

26. Jitendra Pramanik; Singam Jayanthu; Dr Abhaya Kumar Samal. "Applications of IoT Framework for Underground Mine Safety: Limitations and Solutions". *Journal of Mining and Environment*, , , 2024, -. doi: 10.22044/jme.2024.13868.2584 (**ESCI & Scopus**)
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30. Pradeep Kumar Mohanty, Singam Jayanthu, Satya Prakash Sahu Satya Prakash Sahu Saswati Chakladar, 2024, Determinant Analysis of Oil Agglomeration of Coal fines using Multiple Regression and Neural Network Models, *International Journal of Coal Preparation and Utilization*, Volume 34, Issue 6 (2014), <http://dx.doi.org/10.1080/19392699.2024.2424769>

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1. **S Jayanthu**, Atul Gandhe & RN Gupta, 2000. Dealing with pillaring in adverse roof conditions under high horizontal stress fields. *J Mining Engrs*, vol. 2, no. 5, pp.10-18.
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5. G M Nagaraja Rao and **S.Jayanthu**, S K Mohanty and S.Uday Kumar 2006, Evaluation of Properties of some Indian dimensional stones, *The Journal of Mining Engineers*, Vol. 7, No 12, July, 2006, pp 8-11.
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9. **S Jayanthu**, D P Singh and TN Singh, Y Krishna Murthy B. Kalyan, 2010, Strata control problems in coal mines vis-à-vis Geotechnical investigations and numerical models, *The Indian Mining & Engineering Journal*, June -2010, pp 24-30
10. **S Jayanthu**, V Laxminarayan and Ch R Sharma, 2010, Need of Geotechnical Investigations and Strata Control Cell in Coal Mine Areas, *The Indian Mining & Engineering Journal*, July -2010, pp 52-54.

11. S.K.Singh, and **S.Jayanthu**, 2010, Strata Control Technology of Continuous Miner for Mass exploitation of Underground Coal Deposits: A Review of Indian context, The Indian Mining & Engineering Journal, July -2010, pp 62-68.
12. S. K. Singh and **S. Jayanthu**, "Implication of continuous miner in room and pillar mining for mass exploitation of underground coal deposits: an overview", Journal of Mines, Metals and Fuels, vol.59, no.3-4, pp.83-95, Books & Journals Pvt. Ltd 2011 (**Scopus**)
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14. **S Jayanthu**, V Lakshminarayan , T. N Singh and V.P Singh ,2012, Organization of Strata Management Cell – A Vital requirement for all Underground Coal Mines, The Indian Mining & Engineering Journal, July2012, Vol-51 . No -07, pp 23-31.
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**LIST OF PHD/MTECH TOPICS OF TRANS-DISCIPLINARY
INDUSTRY ORIENTED RESEARCH UNDER
THE GUIDANCE**

Ph.D. Topics

- i. Exposure Characterization Of Fine Particulate Matter And Their Risk Assessment In Urban And Mining Environment
- ii. Development of Wireless Sensor Network and IoT Based Slope Stability Monitoring System In Mines
- iii. Real-Time Monitoring Of Slope Behaviour Using Integrated TDR Based Wireless Sensor Network
- iv. Improvement of Power Quality In Underground Coal Mines
- v. Mine Communications, Digital Image Processing.
- vi. Optimum Planning of Long wall Technology In Geologically Disturbed Areas Of Godavari Valley Coal Field
- vii. Various Approaches For Slope Failure Analysis In Opencast Limestone Mines
- viii. Study Of Performance Of Blasting Operations In underground Manganese Mines
- ix. Energy Balance Concept In Blasting In Opencast Iron Ore Mines
- x. Scientific Study On Oil Agglomeration Technology for Improvement Of Coal Quality
- xi. Design of Suitable Mining Method for Underground Metal Mine
- xii. Design of Support Systems Through Various Approaches in Underground Coal Mine Of MCL
- xiii. Slope Stability in Open Cast Coal Mines
- xiv. Performance of Paste Filling In Indian Underground Mines
- xv. Machine Learning And Ai Techniques For Geological Resource And Grade estimation.
- xvi. Design And Development Of A strata Behavior Monitoring System For Underground Coal Mines- Internet of Things (IoT) Framework Integrating Artificial Intelligence and Machine Learning (AI-ML)
- xvii. Innovative Design for The Development of An environment Monitoring System - IOT Framework Integrating AI-ML Techniques
- xviii. Mine Closure Vis-A-Vis Land Amelioration in Open Cast Coal Mine
- xix. Application of Machine Learning and AI Techniques for Geological Resource and Grade estimation
- xx. Stability of Slopes in opencast projects vis-a-vis Blasting In Coal Mines
- xxi. Evaluation of Slope Stability in Iron Ore Mines Vis-À-Vis Numerical Models and Observational Approaches
- xxii. Standardisation of Automation System for Quality Power Distribution In Mining Industry
- xxiii. Net Zero Approach for Coal Mining
- xxiv. Study of stability of mining excavations using Artificial Intelligence (AI) and numerical modelling technique

M.Tech Topics

- i. Application of Fuzzy Logic for Prediction of Roof Fall Area In The Goaf In Coal Mines
- ii. Development of Automatic Digitization of Truck Number in Open Cast Mines Using Microcontroller
- iii. Instrumentation for Real Time Monitoring of Slope Stability in Opencast Mines Using Arduino Based System
- iv. Development of Wireless Sensor Network for Measurement Of Load On Supports"
- v. Measurement of Velocity of Detonation of Explosives Using Dautriche and Electronic Methods
- vi. Study of Coaxial Cables and Prediction of Slope Failure in Mines
- vii. Study of Strata Behaviour and Goaf Atmosphere in Blasting Gallery Panel
- viii. Study of Schmidt Hammer Tests On Coal Measure Rocks
- ix. Study of stability of dumps in chromite mines
- x. Evaluation of stability of slopes in opencast limestone mines vis-à-vis parametric studies through numerical models

MEMBERSHIPS / FELLOWSHIPS

- IIME, 2014
- Institution of Engineers (India),, 2007
- Mining, Geological and Metallurgical Institute of India,, 2007
- ISRMTT, 2007
- Mining Engineers Association of India, 1990
- Member of Indian Geotechnical Society, 1990

AWARDS AND HONOURS

1. 35th Indian Engineering Congress -IEI-18-20Dec2020 (Best Paper Award), 2021IEI -HZL-Hindustan Zinc Limited award for best paper in December 2019, 2020
2. Member of Nomination Council for Infosys Science Foundation since 2012
3. Fellow, Institution of Engineers (India), 2020
4. Honorary Trustee Member- Utkal Yoga and Naturopathy hospital and Research Centre-Rourkela, 2020
5. Member of Board of Studies for Mining Engineering Department of JNTU-Andhra Pradesh, 2020
6. Member of Board of Studies for Mining Engineering Department of JNTU-Telangana, 2019
7. Member of academic Audit committee for Mining engineering Dept of VNIT-Nagpur, 2019
8. Member of editorial board of "Journal of Sustainable Planet", 2019
9. Member of Board of Studies for Mining Engineering Department of GIET-Andhra Pradesh, 2019
10. Member of NBA committee for – Mock training for preparation of documents for NBA accreditation in Mining Engineering Dept of GEC – Bilaspur during 2019, 2019
11. Judge for Young scientist award for Chhattisgarh Young Scientist Congress in 2019, 2019
12. Member of academic Council for Mining engineering Dept of NIT-Raipur, 2019
13. Chief Guest and Keynote speaker for ROBOCHAMPS-2K19- a National Level Robotics Championship by MIET – Meerut and IIT-Mumbai – 29-31 Aug 2019, 2019
14. Eminent Mining Engineering award by IEI – Odisha State Centre during 2015 for significant contributions to the mining industries., 2018
15. Member of Board of Studies for Mining Engineering Department of centurion Unievrsty - Odisha, 2018
16. Member of Board of Studies for Mining Engineering Department of AKS-University-Madhya Pradesh, 2018
17. Evaluator/Examiner for PhD/MTech Thesis work for IIT-Mubai, IIT -KGP, IIT-ISM-Dhd, IIT-BHU, VNIT-Nagpur, NIT-Raipur, NIT-Surathkal, BIT-Sindhri, JNTUH-Telangana,OU-Telangana, BPUT-Odisha, 2018
18. Member of Board of Studies for Environmental Engineering Department of JNTU-Andhra Pradesh, 2017
19. Member of Board of Studies for Mining Engineering Department of Kakatiya University-Telangana, 2017
20. Member of Board of Studies for Mining Engineering Department of MREC-Telangana, 2017
21. Expert Member of Technical Committee of Orissa State Pollution Control Board (OSPCB) for EIA-EMP of mining Industries for Leasehold area more than 1000 Ha or Rs 1000 Crores since 20.7.2015., 2015
22. Member of mining division board of Institution of Engineers - India, 2011
23. Chartered Engineer of Institution of Engineers -India, 2010
24. The Best Citizens of India Award-2010, 2010
25. Honorary Secretary of Institution of Engineers -India-Rourkela Chapter, 2009
26. Editor-in-Chief for Indian Mining Engineering Journal, 2009
27. Reviewer of course “Under Ground Coal Mining” as a part of National Mission Project on Education through ICT on developing suitable pedagogical methods for various classes, intellectual calibres and research in e-learning during 2009 - 2010, This program was sponsored by Ministry of Human Resource Development, Government of India, and anchored by: Indian Institute of Technology, Kharagpur., 2008

28. Expert Member of Technical Committee of Orissa State Pollution Control Board (OSPCB) for EIA-EMP of mining Industries for Leasehold area more than 500 Ha since 2007, 2007
29. National Mineral Award (2000) for distinguished contributions to mining technology by Ministry of Mines -Government of India, 2000
30. Mine managers certificate of competency awarded by Directorate General of Mines Safety (DGMS) to manage a Coal mine, 1988
31. MGMI/SCCL Gold medal for securing First rank in BE-Mining Engg, 1986
32. Member of Board of Directors- IIT BHU Global Alumni Association: 2015-17
33. Member of APEX Committee for R&D Board of Coal India Limited (CIL) since June 2024