

3 –Day Continuing Professional Development Programme

Promotion of Mechanical and Electrical Safety, Energy & Safety Audit in Mining Projects

7 – 9 August 2024



Mining Division

Engineering Staff College of India

An Autonomous Organ of The Institution of Engineers (India)
Hyderabad

Centre for Promotion of Professional Excellence

Introduction

'Make the Workplace Safer For Everyone'

Mine Safety is a broad term referring to the practice of controlling & managing a wide range of hazards associated with the life cycle of mining-related activities, it involves the implementation of recognized hazard controls and reduction of risks associated, to legally, socially & morally acceptable standards. Safety is always of utmost priority and being aware of the working environment is the initial step in preventing injury or illness in the workplace. We need to understand the dangers associated with machinery & take steps to protect the workers. Mechanical Safety is the practice of protecting workers from exposure to potential mechanical hazards. Most machinery has the potential to cause injury to people. Mechanical safety is important because it protects workers from injuries when exposed to moving machinery and equipment parts. Only fully functional safety equipment can protect a miner's life and health and the mine facility itself. Using electrical equipment on the job is always hazardous. Compared with other industries, mining industry is among the most hazardous when it comes to working with electrical power. Almost three-quarters of mine-related electrical injuries and deaths involve using machines, tools, appliances, or lightning that come in contact with wiring, transformers, or other electrical components. Design of flame proof and moisture proof equipment as per the prevailing hazardous zone of classification plays a major role. All these best practices of electrical safety aspects in mines definitely achieve three zeroes i.e. zero electrical equipment breakdowns, zero electrical related accidents and zero power interruptions due to equipment failures. Proper training, maintenance & safety procedures can help reduce the likelihood of an accident occurring, and effective safeguards can help to protect workers from an injury if an accident occur.

Objectives

Mining has high potential risk of electrical related accidents. Hence there is an utmost need to follow all electrical safety measures during operation and maintenance of electrical systems. It is very much essential to ensure electrical safety in mines as mining environment has the potential to affect the safety features of the electrical equipment. Risk assessment based safety and health management system brings together the policies and procedures required to effectively mitigate the risks associated with the mining operations in order to prevent any fatalities, injuries or ill-health affecting miners or general public.

The main objective of the Safety Audit is to particularly examine health & safety prevalent in mines, carry out critical appraisal to identify potential hazards at work places and suggest corrective action. Keeping in view these objectives, this programme is formulated to enable the identification and deliberation on the various risks in the use of mechanical equipment, electrical energy and connected equipment in mining, their assessment and preparation of risk assessment based safety management plans.

ISO 30001 Risk Management provides principles, a framework and a process for an effective risk management strategy for managing risks

Energy is critical to organizations, but often represents a significant cost and is the major contributor to climate change, making up nearly 60 % of the world's greenhouse gas emissions. Taking action to better manage our energy consumption not only helps the planet, it saves money for organizations and society as a whole. Energy Audit & Energy Management Systems is a strategic tool that helps organizations use their energy more efficiently and effectively. ISO 50001 gives organizations a recognized framework for developing an effective energy management system.

Course Coverage & Benefits to the participant

- General safety and safety culture
- Safety features of HEMM & other ancillary equipment and good maintenance practices.TPM.
- Tyre care & management
- General arrangement of transmission and distribution systems

- Control and protection systems to safeguard personnel and equipment
- Electrical safety measures during operation and maintenance of electrical systems and equipment, good documentation to minimize electrical hazards and prevent electrical accidents in mines
- System of earthing and lightning protection schemes to ensure electrical safety-IS 3043 and IS 2309
- Safety work permit systems like LOTO, OTO for energization and de-energization of electrical equipment,
- Legislation and safety laws, statutory guidelines (CEA/DGMS) on electrical safety of transmission & distribution systems.
- Understanding the safety interlocks /controls and protections provided in the electrical systems and equipment.
- Safety audit & guidelines to enhance safety culture
- Risk Management System-ISO 31000
- Energy Audit & Energy Management System-ISO 50001:2018

Methodology

Lectures/presentations, case studies, interactive sessions.

Resource Persons

The resource persons/faculty consists of experts from the industry, DGMS, research establishments and academia besides in-house faculty of ESCI.

Target Participants

This programme would be useful to safety officers, electrical & mechanical engineers, mine managers, excavation and equipment engineers, mining & electrical foremen & supervisors,

Programme Dates & Timings

7 – 9 August 2024

10.00 a.m. - 5.30 p.m. each day.

Course Fee for 3-Days

- **Residential: INR 24,000/-** (Rupees Twenty Four thousand only) per participant which includes course material, course kit, twin-sharing/single AC accommodation, breakfast, lunch, dinner, tea and snacks during the actual days of training programme.
- **Non-Residential: INR 21,000/-** (Rupees Twenty one thousand only) per participant which includes course material, course kit, lunch, tea and snacks during actual days of training programme.
- **Online :** **INR 15,000/-*** (**Rupees Fifteen thousand only**) per participant for Indians and **175 USD** for foreigners which includes course material.
- *Special concession of 10% in course fees to organization for 5 or more nominations and attendance.*
- *ESCI provides complimentary boarding & lodging for the participants a day prior to the commencement of training programme and a day after the conclusion of the programme (check in & check out at 12:00 noon respectively).*
- *Overstay charges will be charged as per ESCI norms.*
- *Spouses may be allowed to stay along with the delegates with prior intimation and on additional payment of nominal charges of INR 1000/- per day*

GST @18% is to be paid extra over and above the course fee.

PAN: AAATT3439Q, GST No: 36AAATT3439Q1ZV, HS No.: 999293 (under commercial training or coaching services – clause 65(105) (ZC) of Finance act – 1994).

Course fee is to be paid in favour of **“THE I.E.(I) – ENGINEERING STAFF COLLEGE OF INDIA”** in the form of demand draft payable at Hyderabad. Alternatively the payment may be

made by **Electronic Fund Transfer (EFT)** to ESCI –**SB A/c No. 33705165550** with **State Bank of India, Manikonda Branch, Door No.2-30/1, Indira Nagar, Gachibowli, Hyderabad – 500032, our NEFT/RTGS/IFSC Code No. SBIN0011076 – MICR No. 500002107.** *While using EFT method of payment, please ensure to communicate your company name, contact details, our invoice reference and programme title.*

Registration

To register, please send your nominations by providing name, designation, contact address, email address, mobile no. / telephone number of the participant along with the details of mode of payment of fee, addressed to: mining@escihyd.org.

Certification

A certificate of participation on the signature of the Director, ESCI would be awarded to each participant on conclusion of the programme.

Profile of Expert Speakers



Mr. P Ranganatheswar graduated in Mining Engineering from Osmania University in the year 1979. Immediately thereafter, joined The Singareni Collieries Company Ltd (SCCL) as a Graduate Trainee and risen up to the Mine Manager level & well experienced in the coal winning operations from manual, semi mechanized to fully mechanized working faces including highly productive long-wall faces. Joined Directorate General of Mines Safety/DGMS as Dy. Director and retired as Dy. Director General spanning about 27 years' work experience in the Government sector. He was also the Secretary to the Board of Mining Examinations (Coal and Metal). He visited Germany, France, U.K., Australia, USA, South Africa and China on different collaborative projects to oversee and understand the best mining practices adopted in their countries. After Retirement he worked as Advisor (Mining) at Gayatri Projects Limited and worked as task based Advisor (Mining) for M/s Central Coal Fields Limited.



Mr V Lakshmi Narayana obtained Diploma in Mining Engineering in 1977 and graduated in Mining Engineering from University of Jodhpur, Rajasthan in 1982. He obtained ME (OCM), MCA, M.Sc.in Yoga (2010, Annamalai University), PGD in Materials Management (1987) and Diploma in Naturopathy. He is holder of First Class Manager's Certificate in Coal and Metal. He is a Fellow, Institution of Engineers (2009) and life member of the Mining Engineers' Association of India (1997). He is a recipient of "Eminent Mining Engineer" award from IEI in 2014. The Indian Mining & Engineering Journal gave Life Time Achievement Award to him in recognition of outstanding contribution to Indian Mining Industry in 2017. He joined as Mining Graduate Trainee in SCCL and rose to the position of Colliery Manager and later joined DGMS as Dy. Director in 1990 and superannuated as Dy. Director General in 2017.

He authored no. of articles on Mining Legislation, Safety Management System, Blasting, Mine Environment, Opencast Mining, Zero harm status, thick seam mining, Slope stability, Accident control etc., and presented in National & International Seminars. He conducted many interactive workshops on Safety Management Plan and Safe Operating Procedures at various mining areas, He worked as part-time lecturer in Govt. Engineering College, Bilaspur and College of Agriculture Engineering & Technology, Udaipur. He visited Australia in 1998 and USA in 2008 and undergone specialized training in Safety Management System, Long wall Mining and extraction of coal by Continuous Miner.



Mr G L Kanta Rao graduated in B-Tech in Electrical Engineering, from JNTU, Kakinada in the year 1980-81. As a practicing Engineer, worked in Hindustan Zinc Limited, Sargipali Mines, Orissa, for about 12½ years and rose to the position of Manager (Elect) providing support to engineering, technical and other varied aspects to an underground semi- mechanized lead mine deploying SDL, winders, crushers and rock breakers, locomotives etc. Thereafter joined DGMS initially as Deputy Director of Mines Safety (Elect) in 1995 and superannuated as Deputy Director General of Mines Safety during in 2018 after a meritorious service of 23 years involved in statutory inspections and accident enquiries in coal, non-coal and oil mines across different parts of India.

As DDG (Elect) and authorized Chief Electrical Inspector of Mines was associated as member of various committees (CEA, Govt. of India and BIS) to bring in amendments, evaluations etc., in relation to the subject of mines.

Presently, he is conducting technical safety audits of mines of HINDALCO (Orissa), JSW (Orissa) and HZL, Rajasthan as and when services are sought for.

As a nominated member on "HIGH LEVEL EXPERT COMMITTEE ON SAFETY" of coal mines under Ministry of Coal, Govt. of India he is extending required advisory services and guidance in respect of safety to different identified mines under Ministry of Coal, Government of India. Some of the recommendations are Root cause analysis, as part of SMP, for accidents, internal and external safety audits by professionally trained and accredited trainers as envisaged in SMP and under consideration by MoC, Government of India.



Mr P Kumar graduated in B.Tech.(Mechanical) from NIT, Calicut , Kerala, M.Tech (IC Engines and Gas Turbines) from NIT, Warangal,Telangana, MBA (Marketing) from IGNOU, FIE - The Institute of Engineers (India) and SMIIE - Sr. Member in Indian Institute of Industrial Engineering.

Experience:

- Worked in Opencast projects in fields of Erection, commissioning, Maintenance of various models and capacities of HEMM.
- TPM coordinator and Implementation of TPM activities.

Worked as Executive Director to Radials International of Michelin OTR Tyres for 6 yrs taking care of business, tyre maintenance and repair services at various projects in India.



Mr Ankem V R N B Manikyala Rao is an engineering graduate in Electrical and Electronics Engineering and M Tech.in Power Systems. Completed MBA in Operations Management and presently pursuing Ph.D. on Optimization of Renewable Energy Integrated with Cogeneration Systems. He has 34 years of industrial experience in CHP plants including coal handling systems and process chemical industries of Department of Atomic Energy. Looked after safety of the electrical systems and worked as a designated safety officer to fulfill the statutory requirements of CEA guidelines, carried out safety audits to fulfill the statutory requirements and to enhance the safety. Being a certified Energy Auditor carried out energy audits in thermal power plants and chemical industries.



Mr A V Raghuram graduated in B Tech (EEE) from S.V. University College of Engineering, Tirupathi and M.Tech (Mining Machinery) from Kothagudem School of Mines, Osmania University, P.G. Diploma in Materials Management from Annamalai University. He worked inSCCL for over three decades and experienced in Longwall Projects and was involved in the Mega Adriyala Project for Project implementation, Installation, commissioning, operation and Maintenance of Longwall machinery and Electrical Systems. He was Advisor (Engg. – Electrical) in SMSL @ Tummalapalli Project - Excavation of Uranium ore for UCIL &.Consultant for Electrical Equipment (System Design & Selection) and Pneumatic tools for Mining Industry. Presently he is working as consultant in Vensar Private Limited,Hyderabad.



Mr Bhaskarudu Peddakotla is a Diploma in Automobile Engineering Industry.

He had 40 years' experience and worked as General Manager (Customer Support) in GMMCO Limited (Caterpillar Dealer), Vice President in Vijay Engineering (Volvo Const eqpt Dealer), Major Cement Industries i.,e Coromandel (later India Cements), Sri Vishnu, Rajashri, Zuari and Priya Cements, Working as freelance consultant in "Condition monitoring and predictive maintenance" of mining and construction machines – Clients: Harsco India Ltd (3 projects), Pearl Minerals etc.



Er K J Amarnath a Gold Medalist, in BE (Mining Engineering) from College of Engineering, Osmania University, Hyderabad. He retired as Chief General Manager from The Singareni Collieries Company Ltd. (A Government Company) after rendering a meritorious service of about 38 years in various capacities in Underground and Opencast Technology in Planning & Operations, Human Resource Development, Business Development, Education, Safety, Corporate Planning and Projects. Further, he was Director in NSGPVL, A Joint Venture Company of NTPC Ltd, A Central Government PSU and The Singareni Collieries Company Ltd, A Government Company.

He visited the United Kingdom, Spain, United States of America & Australia during his service which enhanced his capabilities in terms of Technical, Managerial & Business Skills. He is also a holder of First Class Manager's Certificate of Competency issued by The Director General of Mines Safety, Ministry of Labour, Government of India.

He is a Fellow of Institution of Engineers (FIE) and Life Member of Institution of Engineers, MEAI (Mining Engineers' Association of India), vice-chairman MGMI(Mining, Geology, Metallurgical Association of India),Hyderabad Chapter and vice-president of Alumni of Mining Engineers' Association (Osmania University)

Presently he is working as Senior Faculty-Head, Mining Division, Engineering Staff College of India, Hyderabad.

Contact Persons

Er K J Amarnath, FIE
 Course Director
 Sr. Faculty & Head
 Mining Division
 Engineering Staff College of India
 Hyderabad
 mining@escihyd.org
 9491144022

Er L Krishna
 Faculty
 Mining Division
 Engineering Staff College of India
 Hyderabad
 mining@escihyd.org
 9553939316

Mining Division, Engineering Staff College of India

An Autonomous Organ of The Institution of Engineers (India)
 (An ISO 9001:2015, ISO 14001:2015, ISO 45001:2018, ISO 50001:2018 &
 ISO/IEC 17025:2017 Certified, AICTE & CEA Recognised Institution)

ESCI Road, Gachibowli, Hyderabad – 500032, Telangana, India
Phone: 040 – 66304100 (EPABX), 6630 4154 / 4167 (Direct), Fax: 040 – 66304103
 Email: mining@escihyd.org web portal: www.escihyd.org