



MINE CLOSURE AND SUSTAINABILITY PLANNING

PROF. KHANINDRA PATHAK

Department of Mining Engineering
IIT Kharagpur

INTENDED AUDIENCE : Undergraduate and Postgraduate students of Mining, Environmental and Civil Engineering, working professionals and practicing engineers of various mining and quarrying organizations.

INDUSTRY SUPPORT : CIL, HCL, NALCO, SAIL, NTPC, NLCIL, HZL, Essel Mining, JSW, BEML, HEC, L&T, NMDC, MOIL, NLC India Limited

COURSE OUTLINE :

Mine Closure Planning is now mandatory for all mining operations in India and abroad. The national policies and standards practiced for reclamation and site restoration are now streamlined for regional sustainable development. The FR and DPR of any mining project now need to take care of detailed mine closure planning. Mining ventures are now committed to minimize the long lasting impacts on landscape, ecology and on the mind set of local inhabitants. Today's mining operations require to pay careful attention to post closure societal impacts and post mining mine-site restoration while carrying out the present production as well as environmental and maintenance oriented activities. Mine closure related activities are to be aligned & integrated with various mining activities. Closing of mining operation involves numerous issues like reclamation and environmental protection, community issues, socio-economic consideration, planning for alternate use of available facilities, cost estimation and asset disposal. Mines must have continuously reviewed and updated closure plan, aimed at rehabilitation of disturbed area, which should be acceptable to local community as well as regulatory authority. The concepts of integrated closure planning to facilitate the activities at the closing phase of a mine need now serious and scientific deliberations. Development of mine closure plans requires understanding number of interrelated concepts and aligning with societal transformations. Without adequate environmental management system, cost effective mine closure or outcome based post-closure development of mine site is impossible. Sustainable development of the mining industry requires a holistic approach from exploration of resources to their exploitation as well as eco-friendly management of the waste material. Frameworks for sustainable development of mineral sectors are to be designed keeping economy, health and safety, ecology and global laws in perspective. This course is designed to address these issues through a comprehensive academic approach for real life applications and development of transitional activities in the mining industry.

ABOUT INSTRUCTOR :

Prof. Khanindra Pathak has a B. Tech in Mining Machinery and M.Tech in Surface Mining from IITISM, Dhanbad, PhD in Mining Engineering from Imperial College of Science Technology Medicine, London (Commonwealth Fellowship). He is working as a professor in the Department of Mining Engineering, Ex-Director of Coal India Limited, Ex-HoD of Mining Engineering Department of IIT Kharagpur and University of Technology, Lae, Papua New Guinea. Former Chairman, Eastern Regional Committee of AICTE, Kolkata, Former Chairman, Board Governors TEQIP-III Dibrugarh University Institute of Engineering and Technology, Dibrugarh. Served at Neyveli Lignite Corporation of India Limited, CMPDIL, Coal India Limited, IIT(ISM) Dhanbad. Received National Mineral Award in 2016 besides other awards.

COURSE PLAN :

- Week 1:** Mine Closure concepts and concerns
- Week 2:** Mine Closure concepts and concerns (Cont.)
- Week 3:** Mine Closure Planning
- Week 4:** Mine Closure Finance
- Week 5:** Tools and Techniques for Mine Closure
- Week 6:** Development of integrated mine Closure
- Week 7:** Asset Management and Mine Closure
- Week 8:** Sustainable Development and Mine Closure
- Week 9:** Practices for Sustainability Assurance
- Week 10:** Cleaner Production Approaches
- Week 11:** Sustainable Post mining Environmental Care
- Week 12:** Technology Deployment for Mine Closure