

## MIPC3004 MINE HAZARDS & RESCUE (3-0-0)

### **Module - I: (09 hours)**

Mine gases: properties, physiological effects, occurrence, detection, and monitoring, Sampling, and analysis of mine atmosphere

### **Module - II: (11 hours)**

Spontaneous Heating: Causes, incubation period, detection, remedial measures. Mine Fires Classification, causes, preventive measures, dealing with mine fires – direct and indirect methods, reopening of scaled off areas.; Explosion: Fire-damp Explosion - Limits of inflammability of methane, causes of ignition, nature of fire damp explosion, propagation, and prevention. Coal-dust

### **Module - III: (09 hours)**

Explosion - Index of inflammability, factors affecting explosibility of coal dust, causes and safeguards. Propagation of coal dust explosions, Investigation after an explosion

### **Module - IV: (07 hours)**

Rescue and recovery: Types of rescue equipment and their use, features of rescue stations and rescue rooms, first aid appliances, training of personnel, and organization of rescue and recovery work during mine fires, explosion, inundation

### **Module - V: (09 hours)**

Mine Illumination: Its effects on safety, efficiency and health, Flame, and electric safety lamps, their uses and lamp-room – lay out and organization, standards of illumination in mines, lighting from the mains, photometric illumination survey, Miners' diseases

### **Books:**

1. Mine Disasters and Mine Rescue by M A Ramlu, Universities Press; Second edition
2. Mine Environment & Ventilation by G B Mishra, Oxford University Press
3. Environmental Engineering in Mines by V S Vutukuri & R D Lama, Cambridge University Press, Cambridge.
4. University Press, Cambridge.
5. Elements of Mining Technology-Vol. 2, D J Deshmukh, Denett & Co, Nagpur