

# AMMI-14 UNDERGROUND MINE HAZARDS

## UNIT-1 FIRES

- 1.1 Classification of fires; Causes, detection, monitoring and control of surface and underground fires; fire extinguishers, Preventive measures;
- 1.2 Firefighting – direct methods, sealing off and intersection, firefighting organisations  
Monitoring of atmosphere behind sealed- off areas;
- 1.3 Precautions to be taken before reopening. Methods of reopening,

## UNIT-2 SPONTANEOUS HEATING

- 2.1 Physical and chemical characteristics of coal liable to spontaneous heating,
- 2.2 Mechanism, susceptibility indices, Incubation period and its determination,
- 2.3 Causes, detection, monitoring and control of spontaneous heating in underground mines, on surface and in coal stacks and dumps;
- 2.4 Incubation period; Preventive measures

## UNIT-3 EXPLOSIONS

- 3.1 Types, causes and mechanism of firedamp and coal dust explosions;
- 3.2 Limits of explosibility, inflammability and factor affecting these, sources of initiation,
- 3.3 Preventive measures; Water spraying, Stone dusting, stone-dust and water barriers;
- 3.4 Investigations after an explosion;

## UNIT-4 MINE RESCUE AND RECOVERY WORK

- 4.1 Different types of rescue equipment- constructional features, functions and uses;
- 4.2 Test on rescue apparatus;
- 4.3 Rescue stations and rescue room; Organisation of rescue work.
- 4.4 Fresh air base and its advancing. Rescue rules.
- 4.5 Recovery and first-aid appliances; Training of personnel and organization of rescue station;
- 4.6 Rescue and recovery work in connection with mine fire, explosions and other conditions.

## UNIT-5 MINE INUNDATION

- 5.1 Causes and precautionary measures,
- 5.2 Precautions to be taken while approaching old workings and while working under water bodies; Burnside boring apparatus;
- 5.3 Design and construction of bulk head doors, water dams and barriers;
- 5.4 Recovery of flooded mines; Dewatering of old working;
- 5.5 Water blast: dangers and precautions, Enquiry Report Preparation.

## Reference Books:

1. “Principles and Practices of Modern Coal Mining” by R D Singh
2. “Coal Mining” by I C F Statham.
3. “Ground Engineering – Principles and Practices for Underground Coal Mining” by J M Galvin.