

Discipline :- Mining Engg.	Semester :- 5th	Name of the teaching faculty :- TAPAS KUMAR MISHRA
Subject :- Mine Hazard & Safety	No. of days/class allotted per week :- 4	Semester class from - 01/10/21 to - 08/01/22 No. of weeks :- 15
week	class	theory Topics
1st	1st	Ch - 1 (Mine gases & Testing) → Composition of atmospheric air, Different mine gases → their properties & physical properties.
	2nd	→ Fire damp, black damp, & stink damp, white damp and after damp.
	3rd	→ construction of Flame Safety lamp and its working principle
	4th	→ Explanation ^{methods of} of gas testing by flame safety → Precaution for gas testing

week	class	major Topics
2nd	1st	Describe various parts of flame safety lamp → Special feature of ESL
	2nd	→ Limitation and use of flame safety lamp
	3rd	→ problems related to CO/O_2 and CO_2/O_2 ratio
	4th	ch-2 (Emission of CH_4) Emission of fire damp in U/g workings

week	class	Topics
2nd	1st	→ Gradual oxidation of CH_4
	2nd	→ Blowers
	3rd	Outbursts of fire damps
	4th	Revision of fire damp, hazards and its effects

Week	Day	Topics
1st	1st	ch -> Mine fires and Sp. heating. - Fire in U/g mines -> Types of fires.
2nd	2nd	Extinguishers and the classification
3rd	3rd	Construction of different extinguishers for solid, liquid and liquid gases inflammable matters.
4th	4th	uses and safety features at different points in U/g mines.

Week	Day	Topics
1st	1st	-> Spontaneous Heating and its effects on Carbonaceous matters.
2nd	2nd	-> Causes and effects of Spontaneous Heating
3rd	3rd	Incubation period and its classification
4th	4th	Preventive measures against Spontaneous Heating.

Week	Day	Topics
6th	1st	Deficiency ratio → w/o_2 and l/o_2
	2nd	Solution of ^{various} problems (ch-4 (Mine Explosion))
	3rd	Fire damp explosion and study of their causes and prevention
	4th	Coal dust explosion and their causes and prevention.

Week	Day	Topics
7th	1st	Inflammability of coal dust and fire damp.
	2nd	Study of Lavoisier diagram.
	3rd	Suppression and prevention of dust
	4th	Treatment of dust

Week	Day	Topics
8/16	1st.	Sampling of dust in h/g mines
	2nd.	→ Stone dust barrier and types → Failure of dust barrier
	3rd.	→ Construction of stone dust barriers → German type with specifications →
	4th	→ Construction of stone dust barriers → Polish type with specifications.

Week	Day	Topics
9/15	1st -	ch-5 (Mica Grounding) → Introduction → Sources of water in mines and its danger
	2nd →	Precautions against inundation.
	3rd -	Burnside ^{safety} Boring Apparatus
	4th -	Precautions to be taken while approaching water-logged area

Week	Day	Topics
10th	1st	Water dams - types, its construction and design.
	2nd	Water Danger Plan
	3rd	Statutory provisions while working nearby waterbody.
	4th	Revision.

Week	Day	Topics
11th	1st	Ch-6 (mine lighting and illumination) Illumination in mines
	2nd	Standards of lighting
	3rd	Lighting as per mine regulation
	4th	— dw —

Week	Day	Topics
13th		Ch-8 (Rescue and Recovery)
	1st	Role of mine rescue and recovery
	2nd	Apparatus used for rescue work - Airtel, IV and pretank
	3rd	Apparatus used for rescue work - Drager B-h-174, Self-rescuer
	4th	Apparatus used for rescue work - Smoke Helmet, Gas Mask

week	day	Topics
14th	1st	Ch-8 Construction of rescue brigade and their role in rescue and recovery work.
	2nd	Revision
	3rd	Introduction on Mine Rescue Rules-1985 → definitions.
	4th	Important provisions of the Rescue rule

week	day	Topics
15th	1st	Important provisions of Rescue rules
	2nd	— do —
	3rd	— do —
	4th	Revisions.