

**GOVERNMENT POLYTECHNIC JAJPUR**

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**DEPARTMENT OF MINING ENGINEERING**

**LESSON PLAN (WINTER-2024)**

Discipline: <b>MINING</b>	Semester:5th	Name of the Teaching faculty: <b>Prabhudutta Mishra</b>
Subject: <b>MINE HAZARD AND SAFETY</b>	No of Days/Week class allotted: <b>4</b>	Semester from Date: <b>01/07/24</b> To Date: <b>8/11/24</b> No of weeks: <b>15</b>
<b>Week</b>	<b>Class Day</b>	<b>Topics</b>
1st	1st	i) Lesson plan, Syllabus ii) Importance of this Course, Course Outcomes iii) Exams & Class Tests, iv) Introduction to the course.
	2nd	Composition of atmospheric air. Different mine gases, their properties and physical effects
	3rd	Composition of atmospheric air. Different mine gases, their properties and physical effects
	4th	State fire damp in mines. State black damp in mines. State stink damp in mines. State white damp in mines. State after damp in mines.
2nd	1st	Describe flame safety lamp & its working principle.
	2nd	Explain gas testing by flame safety lamp by accumulation test & percentage test.
	3rd	Explain gas testing by flame safety lamp by accumulation test & percentage test. State precaution for gas testing.
	4th	Describe various parts of flame safety lamp, special features.
3rd	1st	Describe various parts of flame safety lamp, special features.
	2nd	Describe various parts of flame safety lamp, special features.
	3rd	State limitations of flame safety lamp.
	4th	Describe gradual exudation, blower & outbursts of firedamp in U/g workings.
4th	1st	Describe gradual exudation, blower & outbursts of firedamp in U/g workings.
	2nd	Describe gradual exudation, blower & outbursts of firedamp in U/g workings.
	3rd	Define spontaneous heating and its causes and effects. Define incubation period.
	4th	State preventive measures against spontaneous heating.
5th	1st	Explain CO/O <sub>2</sub> ratio.
	2nd	<b>INTERNAL-I</b>
	3rd	Explain CO <sub>2</sub> /O <sub>2</sub> ratio.
	4th	Describe coal dust explosion with their causes & prevention.
6th	1st	Describe coal dust explosion with their causes & prevention.
	2nd	Describe fire damp explosion with their causes & prevention.
	3rd	State inflammability of coal dust. State inflammability of fire damp.
	4th	Explain Coward's diagram.
7th	1st	Explain Coward's diagram.
	2nd	State prevention, suppression & treatment of dust.
	3rd	State prevention, suppression & treatment of dust.
	4th	Describe sampling of dust in Mines.
	1st	Stone dust barrier.

8th	2nd	Stone dust barrier.
	3rd	State sources of water in mines & its danger.State precaution against inundation.
	4th	Describe burnside safety boring apparatus.
9th	1st	State precaution while approaching water logged area.
	2nd	Describe water dams- its construction & design. (Without derivation of formula)
	3rd	Explain water danger plan.
	4th	<b>CLASS TEST-I</b>
10th	1st	Statutory provision for working near water body.
	2nd	Define illumination and its units.
	3rd	Standards of lighting at different parts of mine as per mine regulation.
	4th	Standards of lighting at different parts of mine as per mine regulation.
11th	1st	Explain the effect of noise & vibration on miners & mine structures & other surface structure with respect to statutory provision.
	2nd	Explain the effect of noise & vibration on miners & mine structures & other surface structure with respect to statutory provision.
	3rd	Explain the effect of noise & vibration on miners & mine structures & other surface structure with respect to statutory provision.
	4th	Explain Proto-IV
12th	1st	Explain Proto-IV
	2nd	Proto-V
	3rd	Smoke helmet
	4th	Gas mask
13th	1st	Explain Drager BG-174, Self rescuer
	2nd	Construction of Rescue brigade and their role in rescue and recovery operation.
	3rd	Construction of Rescue brigade and their role in rescue and recovery operation.
	4th	Mine Rescue rules 1985 Annexure I,II,III.
14th	1st	Mine Rescue rules 1985 Annexure I,II,III.
	2nd	Mine Rescue rules 1985 Annexure I,II,III.
	3rd	<b>INTERNAL-II</b>
	4th	REVISION/DOUBT CLEARING CLASS
15th	1st	REVISION/DOUBT CLEARING CLASS
	2nd	REVISION/DOUBT CLEARING CLASS
	3rd	REVISION/DOUBT CLEARING CLASS
	4th	REVISION/DOUBT CLEARING CLASS

**Learning Resources:**

Sl. No.	Title of the Book	Name of Authors
1	Mine Ventilation	G B Mishra
2	EMT - II	D J Deshmukh
3	Coal Mine Practices	E Mason
4	UMS Vol - I	
5	Coal mine Regulations - 2017	
6	Mine Rescue	M A Ramlu

*Prabhu Chandra Mishra*

**Signature of Faculty**