

GOVERNMENT POLYTECHNIC JAIPUR
A/ P: Ragadi, Block: Korei, Dist.: Jajpur, Odisha- 755019
Website: <https://www.gpjajpur.org>

DEPARTMENT OF MINING ENGINEERING

LESSON PLAN

Discipline: MINING	Semester: 4th	Name of the Teaching Faculty: Prabhudutta Mishra	
Subject: MINE VENTILATION	No of Days/Week class allotted: 3	Semester from Date: 22/12/25	To Date: 18/05/26
		No of weeks: 15	
Week	Class Day	Topics	
1st	1st	i) Lesson plan, Syllabus ii) Importance of this Course, Course Outcomes iii) Exams, Class Tests, Introduction to the Mine Ventilation.	
	2nd	Objective of ventilation.	
	3rd	Define geothermic gradient. Definition of natural ventilation and factors affecting natural ventilation.	
2nd	1st	Define geothermic gradient. Definition of natural ventilation and factors affecting natural ventilation.	
	2nd	Different types of Barometer, Kata thermometer.	
	3rd	Sources of moisture content of mine air. Effects of heat and humidity.	
3rd	1st	Natural ventilation	
	2nd	Motive column	
	3rd	Laws of mine air friction and solve problems.	
4th	1st	Laws of mine air friction and solve problems.	
	2nd	Ventilation stopping, air crossing, ventilation door	
	3rd	Brattice partition, Different types of ventilation	
5th	1st	Accessional and declensional ventilation, Homotropical and Antitropical ventilation	
	2nd	Boundary ventilation, Central and combined ventilation.	
	3rd	Splitting of air current and solve numerical problems on splitting	
6th	1st	Air locks at pit top.	
	2nd	Construction and principle of operation of centrifugal flow fans.	
	3rd	Fan laws & calculate fan efficiency and capacity	
7th	1st	Installation of mine fan with reversal arrangement.	
	2nd	Fan drift, fan drive, evasee and diffusers	
	3rd	Fan drift, fan drive, evasee and diffusers	
8th	1st	Fan characteristics and mine characteristics	
	2nd	Fan characteristics and mine characteristics	
	3rd	Methods of output control of mine fans	
9th	1st	Forcing fan vs. exhaust fan	
	2nd	Installation, location and purpose & disadvantages of booster fan.	
	3rd	Installation, location and purpose & disadvantages of booster fan.	
10th	1st	Systems of auxiliary ventilation, Advantages and disadvantages of auxiliary ventilation.	
	2nd	Systems of auxiliary ventilation, Advantages and disadvantages of auxiliary ventilation.	

	3rd	Methods of pressure survey using barometer
11th	1st	Methods of pressure survey using gauge and pitot tube with manometer.
	2nd	Method of measurement of cross-sectional area.
	3rd	Method of measurement of cross-sectional area.
12th	1st	Method of velocity measurements by using anemometer.
	2nd	Velometer
	3rd	Pitot- static tube.
13th	1st	Smoke & cloud method.
	2nd	Determination of percentage of oxygen, methane, carbon monoxide, SO ₂ and H ₂ S by using multigas detector.
	3rd	Causes and preventive measures of leakage of air in mines.
14th	1st	Causes and preventive measures of leakage of air in mines.
	2nd	Previous years questions discussion.
	3rd	REVISION/DOUBT CLEARING CLASS
15th	1st	REVISION/DOUBT CLEARING CLASS
	2nd	REVISION/DOUBT CLEARING CLASS
	3rd	REVISION/DOUBT CLEARING CLASS

RECOMMENDED BOOKS

SL.NO	Title of the Books	Name of Authors
1	Mine Ventilation	G B Mishra
2	EMT II	D J Deshmukh
3	Coal Mine Practices	E. Mason
4	Mine Ventilation	L C KAKU
5	UMS Volume -I	
6	SME HANDBOOK VOL-I & III	

Prabhu Chandra Mishra

Signature of Faculty