

Discipline :- mining	Semester - 5th	Name of teaching staff:-
Subject: under- ground metal mining	no. of classes alloted per week:- 04	from date:- To date:- no. of weeks - 15
week	class	Theory / Practical Topics
1st	1st	→ classify modes of entries → Adits
	2nd	→ Adits, inclines → shafts
	3rd	→ shafts → Applicability of entries
	4th	→ Applicability of entries
2nd	1st	→ doubt clearing class
	2nd	→ Explain formation of blocks of mineral deposits. → Variety of Rocks.

week	class	Theory / Practical Topic
2nd	3rd	<ul style="list-style-type: none"> → Explain level interval → Characteristics of interval scale.
	4th	→ Describe of interval scale
3rd	1st	<ul style="list-style-type: none"> → open raising method → Types of raising.
	2nd	→ Two compartment method.
	3rd	→ Jora raise lift.
	4th	→ long hole drilling method / vertical creaser retreat (VCR) method.

week	class	Theory/Practical Topic
1 th	1 st	<ul style="list-style-type: none"> → long hole drilling method → Planning steps → Productivity process
	2 nd	<ul style="list-style-type: none"> → VCR method → Slope Development and Access → material handling
	3 rd	<ul style="list-style-type: none"> → Alimak raise climber → Raise borehole → Difference between Alimak raise and raise borehole
	4 th	<ul style="list-style-type: none"> → Study between coal and metal mining → coal mining process or methods and their advantages

week	class	Theory/practical Topic
5th	1st	<ul style="list-style-type: none"> → Coal mining operation. → Procedure for coal Exploration.
	2nd	<ul style="list-style-type: none"> → method of extraction. → Classification of coal mining.
	3rd	<ul style="list-style-type: none"> → classification of coal mining and their methods.
	4th	<ul style="list-style-type: none"> → underground metal mining. → Surface mining methods. → coal mining in India locations.

week	class	Theory/Practical Topic
6th	1st	→ classify stoping methods with application.
	2nd	→ Applications and factors affecting methods of stoping
	3rd	→ Preparatory arrangement for stoping
	4th	→ Describe and types of method of stoping → Drilling, blasting, → Introduction of open stoping.

week	class	Theory/Practical Topic
7th	1st	<ul style="list-style-type: none"> → open stoping → Advantages → Disadvantages.
	2nd	<ul style="list-style-type: none"> → open stoping with pillar support. → Sub level of open stoping. → evaluation of the sub level open stoping.
	3rd	<ul style="list-style-type: none"> → location wise open stoping process.
	4th	<ul style="list-style-type: none"> → Raises border. → Development of ore pass system. → Introduction of shrinkage stoping.

week	classes	Theory/Practical Topic
8th	1st	<ul style="list-style-type: none"> → About of Shrinkage stoping. → Advantages of shrinkage stoping mining method.
	2nd	<ul style="list-style-type: none"> → shrinkage mining development. → Drilling and blasting. muck extraction. → Pillar removal.
	3rd	<ul style="list-style-type: none"> → cut and fill stoping. → Application of cut and fill stoping. → Sequences of extracting ore bodies.
	4th	<ul style="list-style-type: none"> → filling in C & F method. → Advantages of the method. → Disadvantages of the method.

week	class	Theory/ Practical Topic
1st	1st	<ul style="list-style-type: none"> → Introduction of Square set Stopping. → Conditions ore strength → Advantages of the method.
	2nd	<ul style="list-style-type: none"> → method of exploitation. → Disadvantages of the method. → cycles of operations Drilling.
	3rd	<ul style="list-style-type: none"> → Block caving. → condition deposits. → Principle of the method of block caving.
	4th	<ul style="list-style-type: none"> → Basic issues of geomechanical to the block caving method → Advantages and Disadvantages of block caving.

week	class	Theory/Practical Topic
10th	1st	<ul style="list-style-type: none"> → Introduction of Sub-level Caving. → Application of Sub-level Caving method. → Advantages of the method → Development. → Configuration of stops
	2nd	<ul style="list-style-type: none"> → Introduction of Top Slicing. → Application of Top Slicing → Advantages of Top Slicing
	3rd	<ul style="list-style-type: none"> → Doubt clearing classes. → Surprise test. → Revised.
	4th	<ul style="list-style-type: none"> → Introduction of Stone Drifting. → Conventional methods of drifting.

week	class	Theory/Practical Topic
1 st	1 st	<ul style="list-style-type: none"> → Conventional method of drifting. → find out direction gradient of drift.
	2 nd	<ul style="list-style-type: none"> → Describe drilling and blasting. → Application of drilling → Process of these.
	3 rd	<ul style="list-style-type: none"> → Describe support, transportation, drainage, ventilation → Processes and advantages of all the mining methods
	4 th	<ul style="list-style-type: none"> → Describe lighting arrangement. → Doubt clearing class.

week	class	Theory/Practical Topic
12th	1st	→ Application and processes of lighting arrangement method.
	2nd	→ Organized in mechanised method of drifting. → Supervision in mechanised method of drifting.
	3rd	→ Introduction of Rock burst. → mitigation of rock burst.
	4th	→ Explain the causes of rock burst.

week	class	Theory Topic
13th	1st	<ul style="list-style-type: none"> → Explain the prevention of rock burst. → mechanism of rock burst.
	2nd	<ul style="list-style-type: none"> → Prevention of rock burst. → Techniques for preventing the rock burst.
	3rd	<ul style="list-style-type: none"> → Necessary prevention condition of rock burst. → Doubt clearing from start of the course.
	4th	<ul style="list-style-type: none"> → Introduction of face mechanization → Introduced Jumbo drill.

week	class	Theory Topic
1 st th	1 st	<ul style="list-style-type: none"> → Describe use of Jumbo drill with air bag. → Describe various loading.
	2 nd	→ Surprise test.
	3 rd	<ul style="list-style-type: none"> → Describe various loading and transportation system. → Low profile Dump Truck.
	4 th	<ul style="list-style-type: none"> → Describe rockers Shovel. → Application and properties and working capability of rockel shovel.

week	classes	theory topics
15th	1st	<ul style="list-style-type: none"> → Applications and working of spiral chutes. → Size specification and transportation process.
	2nd	<ul style="list-style-type: none"> → Definition of Draw point. → Draw point management system.
	3rd	<ul style="list-style-type: none"> → Draw point controls. → Operation and effective management draw point.
	4th	<ul style="list-style-type: none"> → Revised from starting. → Doubt clearing class. → Scaper Definition → Power-units to pull Scrapers.