

GOVERNMENT POLYTECHNIC, DEBAGADA		
Discipline: MINING	Semester: 3rd	Name of the Teaching faculty: Rajiv Lochan Bal, Sr. Lect. Mining
SUBJECT: MINE MACHINERY I	No of Days/Week class alloted: 3	Semester from Date: 01/07/26 To Date: 15/11/26 No of weeks: 15
Week	Class Day	Topics
1st	1st	i) Lesson plan, Syllabus ii) Introduction to the course.
	2nd	Wire Rope. State the types of wire ropes used in Mines.
	3rd	Describe different types of wire ropes used in Mines.
2nd	1st	Explain lay of wire ropes.
	2nd	Define factor of safety to wire ropes. State factors influencing the F.O.S.
	3rd	State efficiency of rope construction, space factor & cross sectional area rope.
3rd	1st	State factors affecting deterioration of ropes.
	2nd	Describe care & maintenance of ropes.
	3rd	State & describe testing & examination of wire ropes.
4th	1st	Give the procedure of splicing of wire rope.
	2nd	Describe rope capel for haulage winding & recapping.
	3rd	CLASS TEST
5th	1st	Rope Haulage.
	2nd	Transportation in mines by rope haulage.
	3rd	State type of rope haulage.
6th	1st	Describe various types of rope haulage with simple sketches.
	2nd	State & describe different type of safety devices on rope haulage roadways.
	3rd	State & describe different types of clips & couplings.
7th	1st	Headgear. State function of headgear.
	2nd	Describe constructional features of headgear pulley.
	3rd	Define angle of fleet. Describe cage, cage suspension gear.
8th	1st	Class Test-01 Test results & Discussion.
	2nd	Describe detaching hooks & its function, safety catch at headgear & keps.
	3rd	State types of guide.
9th	1st	State & describe rigid guide & flexible guide.
	2nd	State & describe guide rope suspension & tensioning arrangement.
	3rd	INTERNAL EXAMINATION
10th	1st	Winding Drum.
	2nd	State different profiles of winding Drum.
	3rd	Describe different types of winding brake.
11th	1st	Describe various types of safety devices on winding system.
	2nd	Friction Winding.

	3rd	State & describe principle & constructional features of ground-mounted koepe winder.
12th	1st	State & describe principle & constructional features of tower-mounted.
	2nd	koepe winder.
	3rd	State advantages & disadvantages of koepe winding.
13th	1st	Describe multirope system of koepe winding.
	2nd	Skip Winding.
	3rd	Describe constructional features bottom discharge skip, Top discharge skip.
14th	1st	Compare skip winding cage winding.
	2nd	Pit top and pit bottom layout. State factors affecting pit top & pit bottom layouts.
	3rd	CLASS TEST 2
15th	1st	Describe different types of pit top & pit bottom car/tub circuit layouts.
	2nd	Class Test-02 Test results & Discussion.
	3rd	REVISION/DOUBT CLEARING CLASS.

COURSE OUTCOMES: At the end of the course, the student will be able to:

- Describe the features, types, construction, uses and maintenance of wires.
- Describe different types of rope haulage.□
- Describe constructional and safety features of cage and shaft fittings.□
- Describe different profiles of winding drum and types of friction winding.□
- Explain skip-winding arrangements.□
- Draw various arrangements of pit top and pit bottom layouts

Rajiv Lochan Dony
Signature of Faculty