

LESSON PLAN

ELECTRICAL EQUIPMENT IN MINES LAB (PR 2)

DISCIPLINE: MINING ENGINEERING
BY: BHUPEN KUMAR PRADHAN

SEMESTER: 5TH
WEEK: 21-07-2026 TO 05-11-2026

Class/Week	Topics to be covered	Hours Allotted
W1	Preparation of electrical switch board to control two light points, one plug point, fan point and put a required fuse (Part 1 - Layout & Wiring Diagram).	4
W2	Preparation of electrical switch board to control two light points, one plug point, fan point and put a required fuse (Part 2 - Assembly & Connections).	4
W3	Preparation of electrical switch board to control two light points, one plug point, fan point and put a required fuse (Part 3 - Testing & Safety Check).	4
W4	Study of circuit breakers - Air Circuit Breaker (Working Principle & Construction).	4
W5	Study of circuit breakers - Oil Circuit Breaker (Working Principle & Applications).	4
W6	Comparative study & operation of Air Circuit Breaker and Oil Circuit Breaker.	4
W7	Study of Gate End Box (Introduction, components, and internal wiring circuit).	4
W8	Study of Gate End Box (Operational control, safety features, and practical demonstration).	4
W9	Study of Gate End Box (Troubleshooting & Maintenance procedure in mining operations).	4
W10	Study of Relays - Buchholz Relay (Construction, working principle, and practical installation).	4
W11	Study of Relays - Over Current Relay (Characteristics, settings, and protection scheme).	4
W12	Identify the different parts of a given cable (Constructional features of mining cables).	4
W13	Find faults in the cable (Types of cable faults & testing methods).	4
W14	Use of Megger check and the continuity of windings (Insulation resistance test and continuity checks).	4
W15	By the use of Megger check the continuity of windings, body to winding, body to earth of a 3-Phase Induction Motor.	4
Total Hours		60

Course Outcome-

CO:1	Prepare an electrical switch board to control two light points and one plug points.
CO:2	Explain circuit breakers along with circuit diagram of gate end box and drill panel.
CO:3	Describe different types of protective system and Relays.
CO:4	Distinguish different types of cables used for mining purpose.
CO:5	Explain the uses of Megger check and continuity of windings.

Bhupen Kumar Pradhan

21-07-2026

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