



SYNERGY SCHOOL OF ENGINEERING, DHENKANAL

LESSON PLAN

SESSION(2026-27)

Discipline:- Mining engineering	Semester:- 3 rd , Winter/2026	Name of the Teaching Faculty: Biswambar Majhi, Lecturer in Mining. Email ID: biswambarmajhikjr@gmail.com
Subject:- Mine Survey-I	No of Days/Week: 03	Start Date: 01/07/26 End Date: 05/11/26

WEEK	CLASS DAY	THEORY TOPICS
1 ST	1 ST	Give survey conventional signs, abbreviation used.
	2 ND	Give standards of lining, inking and coloring.
	3 RD	Describe selection of scales used.
2 ND	1 ST	Explain principle of chain surveying.
	2 ND	Describe instruments used and checking their correctness.
	3 RD	Explain ranging and chaining of a line. Calculate errors in chaining.
3 RD	1 ST	Explain obstruction while chaining.
	2 ND	Explain chaining along a sloping ground. Describe use of line ranger.
	3 RD	Describe use of line ranger and checking optical square for correctness.
4 TH	1 ST	Describe offsets and their measurements.
	2 ND	Give reference sketches of stations.
	3 RD	Give procedure of chain surveying.
5 TH	1 ST	Explain field booking. Plotting of chain survey.
	2 ND	Describe prismatic compass, its adjustments and use.
	3 RD	Explain magnetic meridian, grid line meridian and arbitrary meridian.
6 TH	1 ST	Explain true meridians.
	2 ND	Explain magnetic meridian, grid line meridian and arbitrary meridian.
	3 RD	Explain W.C.B. and Q.B. and conversion from one to other.
7 TH	1 ST	Find out fore and back bearing and their conversion.
	2 ND	Compute angles from bearing and bearing angles.
	3 RD	Define local alteration. Determine local alteration and necessary correction to the bearing.
8 TH	1 ST	Explain closed and open compass surveying and its plotting.
	2 ND	Give procedure of field booking in compass and chain traverses.
	3 RD	Explain adjustment of closing error in compass traversing.
9 TH	1 ST	Describe surveyor compass (miner's dial), its adjustment and use.
	2 ND	Compare prismatic compass with surveyor compass.
	3 RD	Fundamentals of Plane Table Survey. Explain two point problems.
10 TH	1 ST	Explain three point problems and its solution by tracing paper method.
	2 ND	Describe advantages of plane table.
	3 RD	Explain methods of determining areas.
11 TH	1 ST	Find out areas from offset to a base line using Mid ordinate rule.

Biswambar Majhi
02/06/26

	2 ND	Find out areas from offset to a base line using Average ordinate rule.
	3 RD	Find out areas from offset to a base line using Trapezoidal rule.
12 TH	1 ST	Find out areas from offset to a base line using Simpson's rule.
	2 ND	Compute area by Planimeter and from graph paper.
	3 RD	Define benchmark M.S.L., Dumpy level.
13 TH	1 ST	Adjust dumpy level, modern levels (Auto Level & etc.), and precise staff.
	2 ND	Describe methods of leveling - Rise & fall method, height of instrument.
	3 RD	Errors in ordinary leveling. Explain reciprocal leveling, subsidence leveling, setting out gradient.
14 TH	1 ST	Trigonometric leveling, geometrical leveling, and physical leveling.
	2 ND	Classify reserves. Evaluate reserves by exploratory.
	3 RD	Calculate primary ore reserve by material balance method.
15 TH	1 ST	Calculate primary ore reserve by decline curve method.
	2 ND	Describe temporary and permanent adjustment of Theodolite.
	3 RD	Describe the principles of operation & describe different parts. Describe setting of the instrument & Traversing with Theodolite.

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Signature of Faculty

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