GOVERNMENT POLYTECHNIC JAJPUR

DEPARTMENT OF MINING ENGINEERING

LESSON PLAN

Discipline: MINING	**Semester:5TH**	**Name of the Teaching faculty: SOMESH JENA**
Subject: MINERAL EXPLORATION	**No of Days/Week class alloted: 3**	**Semester from Date: 01/07/26 To Date: 05/11/26** **No of weeks: 15**

Week	Class Day	Topics
1st	1st	Basic definitions, historical development and future opportunities and complexities.
	2nd	Geological mapping in mineral exploration
	3rd	various stages of mineral exploration: activities, data and tools.
2nd	1st	various stages of mineral exploration: activities, data and tools.
	2nd	Geological indicators, lithological and structural controls of mineralization
	3rd	Geological indicators, lithological and structural controls of mineralization
3rd	1st	geobotanical observations.
	2nd	Basic concepts of geochemical prospecting:
	3rd	planning, Soil Sampling,
4th	1st	biogeochemical observations analysis andinterpretation.
	2nd	Drilling, sampling, core logging, geological plans and sections.
	3rd	Drilling, sampling, core logging, geological plans and sections.
5th	1st	**CLASS TEST**
	2nd	Drilling, sampling, core logging, geological plans and sections.
	3rd	geophysical methods useful in mineral prospecting: airborne survey,.
6th	1st	geophysical methods useful in mineral prospecting: ,magnetic survey.
	2nd	geophysical methods useful in mineral prospecting:magnetic survey.
	3rd	geophysical methods useful in mineral prospecting:gravity method.
7th	1st	geophysical methods useful in mineral prospecting:gravity method.
	2nd	geophysical methods useful in mineral prospecting: gravity method, electromagnetic method.
	3rd	geophysical methods useful in mineral prospecting: gravity method, electromagnetic method.
8th	1st	geophysical methods useful in mineral prospecting: integration of geological and geophysical data.
	2nd	geophysical methods useful in mineral prospecting: integration of geological and geophysical data.
	3rd	Density and bulk density
9th	1st	**INTERNAL - I**
	2nd	factors affecting reliability of reserve estimation,
	3rd	reserve estimation based on geometrical models (square, rectangular, triangular and polygon blocks) regular and irregular grid patterns.

10th	1st	reserve estimation based on geometrical models (square, rectangular, triangular and polygon blocks) regular and irregular grid patterns.
	2nd	reserve estimation based on geometrical models (square, rectangular, triangular and polygon blocks) regular and irregular grid patterns.
	3rd	reserve estimation based on geometrical models (square, rectangular, triangular and polygon blocks) regular and irregular grid patterns.
11th	1st	reserve estimation based on geometrical models (square, rectangular, triangular and polygon blocks) regular and irregular grid patterns.
	2nd	Photogeology, Remote Sensing and Geographic Information System in Mineral Exploration: Remote Sensing,
	3rd	Photogeology, Remote Sensing and Geographic Information System in Mineral Exploration: Remote Sensing,
12th	1st	GIS and computer software applications in mineral exploration, Evaluation Techniques, case studies.
	2nd	GIS and computer software applications in mineral exploration, Evaluation Techniques, case studies.
	3rd	GIS and computer software applications in mineral exploration, Evaluation Techniques, case studies.
13th	1st	GIS and computer software applications in mineral exploration, Evaluation Techniques, case studies.
	2nd	GIS and computer software applications in mineral exploration, Evaluation Techniques, case studies.
	3rd	**INTERNAL - II**
14th	1st	REVISION, Doubt clearing class (DC)
	2nd	REVISION, Doubt clearing class (DC)
	3rd	REVISION, Doubt clearing class (DC)
15th	1st	QUESTION DISCUSSION, Doubt clearing class (DC)
	2nd	QUESTION DISCUSSION, Doubt clearing class (DC)
	3rd	QUESTION DISCUSSION, Doubt clearing class (DC)

RECOMMENDED BOOKS

SL NO.	Name of Author	Title of Books
1	S. K. Haldar	Mineral Exploration: Principles and Applications
2	Anthony M. Evans Michael K. G. Whateley	Introduction to Mineral Exploration
3	Indian Bureau of Mines	Elements of Mineral Exploration

Signature of Faculty