Course Type	Course Code	Name of Course	L	T	P	Credit
DP	**GPE203**	**Geophysical Prospecting Practical**	**0**	**0**	**2**	2

Course Objective

To facilitate the understanding and use of various geophysical methods in solving exploration problems.

Learning Outcomes

Upon successful completion of this course, students will get a broad understanding of the basic principles and working procedures of various geophysical exploration methods.

S.No.	Title of the Practical	Lecture hours	Learning Outcome
01	Gravity Data Processing (calculating the Bouguer anomaly from the given raw data)	02	It helps in understanding the basic concept of gravity method and its application in geology and mineral exploration.
02	Gravity Data interpretation (calculating the depth to the source bodies by plotting the Bouguer anomaly vs Profile distance)	02	It helps in understanding the basic concept of gravity method and its application in geology and mineral exploration.
03	Magnetic Data interpretation (calculating the depth to the source bodies by plotting the Magnetic anomaly vs Profile distance)	02	It helps in understanding the basic concept of the magnetic method and its application in geology and mineral exploration.
04	Understanding the acquisition procedure of SP data and plotting the data after necessary corrections.	02	It helps in understanding the basic concept of the Self-Potential technique and its application in geology and mineral exploration.
05	Interpretation of the SP anomaly signature over a Sulphide ore mineralization	02	It helps in understanding the basic concept of the Self-Potential technique and its application in geology and mineral exploration.
06	Plotting the given resistivity data vs distance, interpreting the type of the curves, and writing inference.	04	It helps in understanding the basic concept of the Resistivity technique and its application in geology, groundwater, and mineral exploration.
07	Seismic data processing techniques, NMO correction etc,	02	It helps in understanding the basic concept of the Seismic method and its application in geology and hydrocarbon exploration.
08	Basement layer depth estimation by Seismic reflection data interpretation	02	It helps in understanding the basic concept of the Seismic method and its application in geology and hydrocarbon exploration.
09	Basement layers depth estimation by Seismic Refraction data Processing and interpretation	02	It helps in understanding the basic concept of the Seismic method and its application in geology and hydrocarbon exploration.
10	Determination of cementation factor and Formation factor from Archie's equation for the given well log data	02	It helps in understanding the basic concept of the well-logging technique and its application in geology and hydrocarbon exploration.

11	Porosity estimation from the given well log data	02	It helps in understanding the basic concept of the well-logging technique and its application in geology and hydrocarbon exploration.
12	MT anomaly data interpretation for the deep-seated mineralized zones	04	It helps in understanding the basic concept of the electromagnetic method and its application in geology, groundwater, and mineral exploration.
	Total	**28**	

Text Book

1. Telford, W. M., Geldart, L. P., Sheriff, R. E., and Keys, D. A., 1988, Applied Geophysics
2. Lowrie, W., Fundamentals of Geophysics, Cambridge Univ. Press, 2007

Reference Books

1. Dobrin, M. B. and Savit, C., Introduction to Geophysical Prospecting,
2. Dehlinger, P., Marine Gravity,
3. Heiskanen, and Veining Meinsez, Gravity Field of the Earth,
4. Nettleton, L. L., Gravity and Magnetics in Oil Prospecting,
5. Rao, B. S. R. and Murthy, I.V.R., Gravity and Magnetic Methods of Prospecting