Course Type	Course Code	Name of Course	L	T	P	Credit
DC	NGLC517	**Ore Geology**	3	0	0	3

Course Objective

The course deals with the natural mineral resources and their association with different host rocks during their formation. The fundamental concepts regarding the origin of the mineral can be well understood with a thorough knowledge on the mineral assemblages, textural features, paragenetic order and metallogeny

Learning Outcomes

Upon completion of the course, students will be able to:

- Understand the different ore systematic at divergence geological setting and terrains with implications for exploration.
- Identification of minerals based on their optical properties and textural behaviour and their application in mineral beneficiation industries.
- To know the source and depositional environment based on isotopic and fluid inclusion studies.

Unit No.	Topics to be Covered	Lecture Hours	Learning Outcome
1	a. Ore forming processes: Introduction to different ore forming processes and their geodynamic settings.	10	Different ore forming processes and metallogeny with case studies.
2	b. Geochemical concepts of the ore system: Partition of trace elements, Phase diagrams of ore minerals. Calculation of thermo-barometric parameters for oxide and sulphide phases. Different types of chemical reactions involved in hydrothermal alterations and supergene enrichment.	10	Phase diagrams of different geochemical environment and hydrothermal alteration.
3	c. Introduction to Ore microscopy: Qualitative and Quantitative methods in the identification of Ore minerals.	7	Methods to study ore minerals.
4	d. Introduction to ore textures, microstrutures and applications: Ore textures and paragenesis. Industrial application of ore microscopy and process mineralogy.	7	Application of ore microscopy in exploration and process mineralogy.
5	e. Fluid Inclusion Studies and Application: Nature of ore forming fluids. f. Fluid inclusions and their application in the genesis of ores. Isotopes and their bearing on ore genesis and application.	8	Importance of fluid inclusion and isotopic studies in ore systems.
	Total Classes	42	

Text Books:

2. Kula C Misra. 2001. Understanding Mineral Deposits. Kluwer Publ.
3. Craig, J.R and Vaughan, D.J., 1981. Ore Microscopy and Ore petrography. John Wiley &sons.

Other References:

1. Robb, L. (2005) Introduction to Ore-Forming Processes by, Blackwell Publishing Ltd.
2. H.L.Barnes (Ed). 1997. Geochemistry of Hydrothermal deposits. III Edn. John Wiley & Sons.
3. A.M. Evans. 1997: Ore Geology and Industrial minerals- An introduction (III edn.) Geoscience, Texas