Course Type	Course Code	Name of Course	L	T	P	Credit
DC11	NGLC312	Geology of Ore Deposits	3	1	0	4

Course Objective

The key objective of the course is to introduce the students with the different aspects of ore geology including the process of formation, their geotectonic setting, ore textures and their application.

Learning Outcomes

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

1. Understand the different ore systematic at divergence geological setting and terrains with implications for exploration.
2. Identification of minerals based on their optical properties and textural behaviour and their application in mineral beneficiation industries.
3. 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	Introduction to different ore forming processes and their geodynamic settings.	10	The students will understand the different process of ore formation e.g. magmatic, hydrothermal, sedimentary and metamorphic processes and their environmental conditions.
2	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.	9	Learn about the geochemical behaviour of elements involved in different ore systematic and their associational features. Application of different hydrothermal alterations and their utility.
3	Qualitative and Quantitative methods in the identification of Ore minerals.	6	Learn about the parts and functions of ore microscope and methods about studying ores under petrological microscope.
4	Ore textures and paragenesis. Industrial application of ore microscopy and process mineralogy.	7	Learn about the different ore textures developed in igneous, sedimentary and metamorphic rocks.
5	Fluid inclusions and their application in the genesis of ores. Isotopes and their bearing on ore genesis and application.	7	Understand about the basics of fluid inclusions and their application in geological systems. Application of isotopes in interpreting the ore genesis.

Recommended Books/References:

1. Misra, K.C. (2001) Understanding Mineral Deposits. Kluwer Publ.

2. Craig, J.R. and Vaughan, D.J. (1981) Ore Microscopy and Ore petrography. John Wiley & sons.
3. Robb, L. (2005) Introduction to Ore-Forming Processes by, Blackwell Publishing Ltd.
4. Barnes, H.L. (Ed). 1997. Geochemistry of Hydrothermal deposits. III Edn. John Wiley & Sons.
5. Evans. A.M. (1997) Ore Geology and Industrial minerals- An introduction (III edn.) Geoscience, Texas