

| Course Type | Course Code | Name of Course | L | T | P | Credit |
|-------------|-------------|--|---|---|---|--------|
| DC | GLC208 | Economic Geology & Indian Mineral Deposits | 3 | 0 | 0 | 9 |

Course Objective

The key objective of the course is to introduce the students with the geodynamic evolution of the earth

Learning Outcomes

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

1. Basic concepts of the processes of the formation of the ore deposits.
2. Mode of occurrences of the different types of ore deposits in India and in various parts of the world
3. Spatio-temporal distribution of the different kinds of mineral deposits in India

| Unit No. | Topics to be Covered | Lecture Hours | Learning Outcome |
|----------|--|---------------|--|
| 1 | Introduction & Terminology: Syngenetic /epigenetic, stratiform /stratabound ores, Hypogene and supergene ores, ore and gangue minerals, grade and Tenor | 8 | The students will understand the basic terminology of the ore deposits |
| 2 | Classification of ore deposits & Processes of Ore mineralisation: Ores formed by Sedimentary process. BIF, stratabound, stratiform types, polymetallic nodules. Residual and mechanical concentration and supergene processes. | 10 | Learn about the different types of the processes of the formation of the Ore deposits |
| 3 | Ores of igneous affiliations: Magmatic associations with special types like ultramafic-mafic and felsic suites. Different categories of magmatic ore deposits. | 6 | Learn about the processes of formation of magmatic ore deposits |
| 4 | Ores formed by metamorphism. Metamorphism of ores and associated rocks. Skarn type mineralisation. Hydrothermal ore deposits. Vein type deposits; Lode gold and hydrothermal base metal deposits.. | 7 | Learn about the metamorphic and hydrothermal processes of the formation of an ore deposits |
| 5 | Mode of occurrence and controls of ore deposition. Temporal pattern and distribution of types of ores through geologic time | 4 | Understand about the spatiotemporal aspects of ore forming processes. |
| 6 | Distribution and brief geological aspects of important Indian metallic and nonmetallic deposits. | 7 | Learn about the various types of ore deposits in India. |

Text books

1. Economic mineral deposits, (by Jansen ML & Bateman AM; Eds: John Willey and Sons (1982)
2. An introduction to Economic Geology and its environment (by Anthony M. Evans; Eds: Blackwell Science, 1997)

Reference Books

1. Mineral resources of India (by D.K. Banerjee, 1998; Word Press Ltd, 2nd Eds).
2. Handbook of mineral exploration and ore petrology: Techniques and Applications. (by R.Dhanraju, Publisher : Geological Society of India, Bangalore 2009)