

Course Type	Course Code	Name of Course	L	T	P	Credit
DSC	NMNC103	Elements of Mining	3	0	0	3

Course Objective

To introduce the basic elements of mining engineering with a view to recognize the key aspects of opening of mineral deposits and different mining methods.

Course Outcomes

Basic understanding of different types of mine openings, mining methods and equipment, unit operations and ancillary services. Ability to prepare some basic layouts of different mining methods.

Unit No.	Topics to be Covered	Lecture Hours	Learning Outcome
1	Mining: Definition and economic importance; Mine – definition, different types and classification; Mine life cycle, Exploratory Drilling; Mineral deposit – different types and their classification; Mineral resources of India;	9	General understanding on mining lifecycle and mineral resources.
2	Opening-up of Deposits: Choice of mode of entry - adit, shaft, incline, decline and combined mode, their applicability, number and disposition. Box cut- types and location.	6	Decision to choose a suitable location of a mine entry.
3	Vertical/Inclined Shafts, Inclines/Declines: Location, shape, size, and organisation of shaft sinking, sinking methods, construction of shaft collar, shaft inset, shaft fittings. Methods of incline/decline drive.	10	Shaft sinking and drifting technology.
4	Overview of underground mining: Different coal mining methods and their applicability & limitations; Different metal mining methods and their applicability & limitations; Basic concepts of transportation, ventilation, illumination and support in underground mines.	10	Underground mining unit operations and basic layouts
5	Overview of surface mining: Types of surface mines, applicability & limitations, unit operations and equipment selection, pit geometry and layout.	7	Surface mine unit operations and basic layouts.
Total		42	

Text Books:

1. Introductory Mining by H L Hartman
2. Elements of Mining Technology (Volume 1, 2 and 3) by D J Deshmukh

Reference Books:

1. Principles and Practices of Coal Mining by R D Singh
2. SME Mining Engineering Handbook, 3rd Edition by Peter Darling

[Signature]
31/05

[Signature]
31/05/24 D.G. Kulkarni

[Signature]
31/05 P.L. 31-05-2024