

Course Type	Course Code	Name of Course	L	T	P	Credit
DE1	NMND506	Elements of Mining Engineering	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	<b>Mining-</b> Definition of mine, economic importance, Different types of mine, Life cycle of the mine, Mineral resources of India.	8	General understanding on mining lifecycle and mineral resources.
2	<b>Mine Opening</b> – Selection of mine entry, Adit, shaft, decline, Box cut,	5	Decision to choose a suitable location of a mine entry.
3	<b>Mine entry Shaft, Decline, Box cut, Declines-</b> Location, shape, size, and organisation of shaft sinking, sinking methods, construction of shaft collar, shaft inset, shaft fittings. Methods of incline/decline drirage.	10	Shaft sinking and drifting technology.
4	<b>Method</b> - 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	<b>Overview of surface mining:</b> Types of surface mines, applicability & limitations, unit operations and equipment selection, pit geometry and layout.	6	Surface mine unit operations and basic layouts.
<b>Total</b>		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.