

INTRODUCTION TO MINERAL ENGINEERING LABORATORY

Course Type	Course Code	Name of Course	L	T	P	Credit
DSC	NFMC104	Introduction to Mineral Engineering Laboratory	0	0	2	1

Course Objective

To impart practical exposure to the basic laboratory experiments in mineral engineering.

Learning Outcomes

After completion of the course, the students will have hands-on knowledge of

- particle characterization techniques
- construction and operation of laboratory scale models of common industrial crushers
- effect of different parameters on size reduction

Unit No.	Name of Experiment	Practical Hours	Learning Outcome
1	Crushing by laboratory jaw crusher	2	Familiarization with laboratory crushing using a jaw crusher
2	Crushing by laboratory roll crusher	2	Familiarization with laboratory crushing using a roll crusher
3	Crushing by laboratory vertical rotary crusher	2	Familiarization with laboratory crushing using a laboratory vertical rotary crusher



4	Ball mill grinding	2	Familiarization with laboratory grinding using a ball mill
5	Determination of calorific value for a solid fuel	2	Understanding of the process of determination of the calorific value of a solid fuel
6	Determination of calorific value for a liquid fuel	2	Understanding of the process of determining the calorific value of a liquid fuel
7	Particle size analysis using laser diffraction	2	Understanding of the process of determination of particle size using laser diffraction technique
8	Determination of the zeta potential for coal	2	Knowledge of the technique for the measurement of the zeta potential for coal
9	Determination of the zeta potential for a metallic ore	2	Knowledge of the technique for the measurement of the zeta potential for a mineral
10	Destructive distillation	2	Understanding of the laboratory destructive distillation process
11	Stratification using jigging	2	Appreciation of density based stratification occurring in jigging
12	Determination of multi-element chemical composition of an ore sample using AAS	2	Familiarization with the method for chemical analysis using Atomic Absorption Spectrophotometer
13	Determination of the ultimate compressive strength of a material using UTM	2	Familiarization with the laboratory technique for measuring the ultimate compressive strength of materials

