

COAL AND MINERAL PROCESSING PLANT DESIGN LABORATORY

Course Type	Course Code	Name of Course	L	T	P	Credit
DC	FMC305	Coal and mineral processing plant design laboratory	0	0	3	3

Course Objective

The objective of the course is to present comprehensive knowledge about the design and development of coal and mineral processing plants through case studies

Learning Outcomes

Upon successful completion of this course, students will:

- have a broad understanding of basic steps followed in flowsheet development
- be able to develop plant flowsheets with mass, water, and grade balancing

Unit No.	Topics to be Covered	Lecture Hours	Learning Outcome
1	Comprehensive flowsheet development with mass and water balancing with excel sheet	3	Students will learn to develop a comprehensive flowsheet with mass and water balancing with an excel sheet
2	Crushing and grinding circuit for preparation of pellet feed iron ore	3	Students will learn to develop crushing and grinding circuits for iron ore
3	Size preparation circuit for coking coal	3	Students will learn to develop size preparation circuit for coking coal
4	Cleaning circuit for coking coal	3	Students will learn to develop cleaning circuits for coking coal
5	Size preparation and cleaning circuit for non-coking coal	3	Students will learn to develop size preparation and cleaning circuits for non-coking coal
6	Crushing and grinding circuit for sulphide ores such as copper, lead-zinc, etc.	3	Students will learn to develop crushing and grinding circuits for sulphide ores
7	Flotation circuit for sulphide ores such as copper, lead-zinc, etc.	3	Students will learn to develop flotation circuits for sulphide ores
8	Crushing and grinding circuit for limestone	3	Students will learn to develop crushing and grinding circuits for limestone
9	Flotation and dewatering circuit for limestone	3	Students will learn to develop flotation and dewatering circuits for limestone
10	Rock and aggregate crushing circuit	3	Students will learn to develop size preparation circuits for rock and aggregates

Text Books:

1. Mineral processing plant design. Mular, A.L.; Bhappu, R.B. (eds.). New York: Society of Mining Engineers of the American Institute of Mining, Metallurgical and Petroleum Engineers, Inc., 1980
2. Mineral Processing Design and Operations, Ashok Gupta and Denis Yan, Elsevier 2016.
3. Mineral processing plant design, practice, and control: proceedings, Andrew L. Mular, Doug N. Halbe, Derek John Barratt, Society for Mining, Metallurgy and Exploration, 2002