PARTICLE TECHNOLOGY LABORATORY

TYPE	COURSE CODE	NAME OF THE COURSE	L	T	P	CREDIT
DP	FMC251	Particle Technology Laboratory	0	0	3	3

COURSE OBJECTIVE

To impart practical exposure to the different particle characterisation and size reduction techniques

LEARNING OUTCOMES

After completion of the course, the students will have hands-on knowledge of
- particle characterisation techniques
- construction and operation of laboratory scale models of common industrial crushers
- effect of different parameters on size reduction

NO.	TOPICS TO BE COVERED	HOURS	LEARNING OUTCOME
1	Sampling – methods and accuracy	3	Knowledge of the different sampling methods and their accuracy
2	Dry sieving	3	Knowledge of particle size distribution analysis through sieving
3	Wet sieving	3	Knowledge of particle size distribution analysis through sieving and understanding of the effect of water addition in sieving
4	Relative density and bulk density determination	3	Knowledge of the techniques used for the determination of relative and bulk densities
5	Abrasion index determination	3	Knowledge of the techniques used for the determination of abrasion index
6	Sub-sieve size distribution analysis using Andreasen pipette	3	Familiarisation with the process of sub-sieve size analysis with Andreasen pipette
7	Sub-sieve size distribution analysis using beaker decantation method	3	Familiarisation with the process of sub-sieve size analysis with beaker decantation method
8	Sub-sieve size distribution analysis using Cyclosizer	3	Familiarisation with the process of sub-sieve size analysis with Cyclosizer
9	Roll crusher – importance of set and feed material	3	Understanding the construction and operation of a roll crusher and the effect of its set and the feed material on its performance
10	Jaw crusher – importance of type and feed material	3	Understanding the construction and operation of a jaw crusher and the effect of its type and the feed material on its performance
11	Effect of crusher type on breakage of material	3	Understanding of the difference in breakage characteristics of different crushers
12	Grinding – effect of residence time	3	Understanding the construction and operation of a ball mill and the effect of residence time on its performance
13	Grinding – effect of ball size distribution	3	Understanding the effect of ball size distribution on the grinding mill performance
14	Grinding – effect of ball charge	3	Understanding the effect of ball load on the performance of a ball mill
	Total	42	