Course code	Course name	L-T-P-credits	Year of Introduction
CH234	PARTICLE TECHNOLOGY LAB	0-0-3-1	2016

Prerequisite: CH203 Particle technology

Objective

1. To analyse and apply knowledge of size analysis and size reduction methods by performing experiments.
2. To impart knowledge of solid-solid and solid-fluid separation equipments and provide knowledge of their working and constructional features.

List of exercises/experiments (Minimum 10 are mandatory)

1. Sieve analysis -Determination of particle size distribution, mean diameters,
2. specific surface area and number of particles per unit mass
3. Determination of the effectiveness of the screen
4. Pipette analysis-Determination of particle size distribution, specific surface area and mean diameters
5. Beaker decantation- Determination of particle size distribution, specific surface area and mean diameters
6. Sedimentation – Determination of area of a thickener
7. Verification of the laws of crushing
8. Ball mill - Determination of the critical speed
9. Leaf filter- Determination of specific cake resistance and compressibility factor
10. Cyclone separator – Determination of collection efficiency
11. Free Settling- Determination of terminal settling velocity
12. Studies on Plate & frame filter press, Mineral jig, and Wilfley table
13. Studies on Continuous thickener, Rotary drum filter, Jaw crusher and Hammer mill

Expected outcome

At the end of the course, students will be able to

1. Plan and perform experiment using size reduction equipment and estimate the energy requirements for a specified reduction in size of a given material.
2. Plan and perform experiment using equipments used in industrial operations such as Screening, Classification, Sedimentation, Filtration etc.
3. Demonstrate capacity to work in teams and exhibit knowledge of safety, health and environment by practicing laboratory ethics.

References

- Unit Operations of chemical Engineering,Warren McCabe, Julian Smith and Peter Harriott , McGraw Hill publishers
- Introduction To Chemical Engineering ,J.T. Banchero and W.L. Badger , McGraw Hill Publishers
- Coulson and Richardson's Chemical Engineering volume 2, Particle Technology and Separation Process, Elsevier publishers.