MECHANICAL OPERATION LAB

Course Code:15CH1106

L	T	P	C
0	0	3	2

Course Outcomes:

On successful completion of the course, the student should be able to

CO 1 Estimate the size of the given sample using cone and quatering and riffle sampler

CO 2 Calculate size reduction ratio, grindability index using ball mill and jaw crusher.

CO 3 Calculate the effectiveness of a given screen.

CO 4 Apply separation techniques like forth floatation, sedimentation to separate a mixture.

CO 5 Compute power laws using roll crusher.
*Student should also submit a detailed report for all the above laboratory practicals.

LIST OF EXPERIMENTS:

1. To determine the time of grinding in a ball mill for producing a product with 80 % passing a given screen.
   Major equipment - Ball mill, Sieve shaker, Different sizes of sieves, weighing balance.
2. To verify the laws of crushing using any size reduction equipment like crushing rolls or vibrating mills and to find out the working index of the material.
   Major equipment – Jaw Crusher, Sieve shaker, Different sizes of sieves, Weighing balance, Energy meter.
3. To find the effectiveness of hand screening of a given sample by a given screen.

Major equipment - Vibrating Sieve shaker, Different sizes of sieves, Weighing balance.

4. To separate a mixture of oil into two fractions using froth flotation technique.
Major equipment - Froth flotation cell.

5. To obtain batch sedimentation data and to calculate the minimum thickener area under given conditions.
Major equipment- Sedimentation apparatus.

6. To determine the specific cake resistance and filter medium resistance of a slurry in plate and frame filter press. Major equipment - Plate and Frame filter press.

7. To separate a mixture of particles by Jigging.
Major equipment - Jigging apparatus

8. Studies on cyclone separator.
Major equipment - Cyclone separator

9. Studies on pulverizer.
Major equipment – Pulverizer.

10. Verification of Stoke's law.
Major equipment – Stoke's law apparatus.

11. Grinding studies on hard/ soft materials.
Major equipment – Grinder.