

DETAILS OF LABORATORY

Survey Laboratory

The objective of this laboratory is to learn about measurement of distances, angles, reduced levels and setting out works. The experiments include determination of distances using chain and tape, reduced levels and contours using level, bearing of lines using compass, horizontal and vertical angles using Theodolite and graphical method using plane table. Use of modern equipment like total station will be demonstrated. This laboratory course will help the students to understand the theoretical concepts learned in the course surveying.

List of equipments

1. Theodolite
2. Total station
3. GPS system
4. Plane table
5. Surveyor and Prismatic compass

Strength of materials Laboratory

This laboratory provides knowledge on materials strength, stress, hardness and modulus of rigidity. The laboratory is equipped with key machines such as the Universal testing machine, Torsion testing, and Brinell hardness etc.

STRENGTH OF MATERIALS LAB

Fluid mechanics and machinery Laboratory

The objective of this laboratory is to determine the various parameters related to fluid flow in pipes and in open channels and to study the characteristics of pumps and turbines. The experiments include determination of friction factor, minor loss coefficients, and coefficient of discharge of constriction meters, orifices, mouth pieces, notches and weirs, characteristics of flow profiles and hydraulic jump and characteristics of pumps and turbines and verification of momentum theorem. This laboratory course will help the students to understand the theoretical concepts learned in the courses fluid mechanics and open channel flow and hydraulic machinery.

Soil mechanics Laboratory

The objective of Soil mechanics laboratory is to determine the physical and engineering properties of soil that are essential for the design of foundations. Physical properties include specific gravity, moisture content, density and consistency limits namely, liquid, plastic and shrinkage limits of soil. The engineering properties include permeability, consolidation, compressibility, shear strength and bearing capacity of soil. Testing of soil will increase the potential of the students to test the soil samples in the field conditions and interpret the results efficiently

List of equipments

1. Hydrometer
2. Liquid and Plastic limit apparatus
3. Shrinkage limit apparatus
4. Proctor compaction apparatus
5. Unconfined Compression machine(UTM 20kN capacity)
6. Direct shear apparatus
7. Triaxial shear test apparatus
8. Soil permeability apparatus
9. Relative density apparatus
10. Infrared moisture meter

SOIL MECHANICS LAB

Concrete and highway Laboratory

Concrete Highway lab is designed to expose the students to the testing of construction materials. Some of the materials that can be tested in the lab include (i) Cement, (ii) Coarse Aggregates, (iii) Bitumen. The tests performed by the students include determination of specific gravity, fineness, normal consistency, setting times, workability and soundness of cement, fineness modulus of fine and coarse aggregate, strength of cement mortar, cement concrete and bricks, tensile test on steel rods, bending and flexural strength on concrete, bending test on wood, and non destructive test on concrete. The bitumen properties are also tested by the experiments such as tests for penetration, ductility, viscosity, softening point and flash and fire point for bitumen. The students will be able to infer the suitability of these materials for construction purpose.

List of Equipments

1. Concrete mixer
2. Slump cone apparatus
3. Flow table apparatus
4. Vibrator
5. Compression testing machine
6. V-ber consistometer
7. Aggregate impact testing machine
8. CBR apparatus
9. Blaine apparatus
10. Marshall stability apparatus
11. Flexural strength testing machine
12. Compaction factor apparatus
13. Ductility Testing machine
14. Bitumen penetration apparatus
15. Aggregate crushing value apparatus

Environmental Laboratory

Environmental Engineering Lab is well equipped with sophisticated equipments to characterise water and waste water quality. The lab is well equipped with equipments such as

Gas Chromatography, Atomic absorption spectrophotometer, and flame photometer. The physical, chemical and biological characteristics of water and wastewater can be determined in this Lab. Apart from the conventional pollutants the presence of heavy metals, volatile organic compounds can also be tested in this Lab. The students also learn how to implement unit processes (sedimentation, filtration, flocculation/coagulation, and disinfection) to design water and wastewater treatment units.

List of Equipments

1. Oxygen analyzer
2. UV Spectrophotometer
3. Ion selective electrode
4. Flame photometer
5. Gas chromatography
6. Atomic absorption spectroscopy
7. BOD and COD analyzer
8. Digital conductivity meter
9. Jar test apparatus
10. pH-meter
11. Digital photo Calorimeter
12. Kjeldal digestion apparatus
13. Microscope
14. Jar tests apparatus