



Military College of Engineering (MCE)

- + Geotechnical Lab
- + Concrete Lab
- + Transportation Lab
- + Strength of Materials Lab

Introduction. The journey that started in 1948 from Sialkot spans over 69 years of rich history and success. The College is committed to the pursuit of knowledge and professionalism. MCE has the honor of producing 3,780 engineering graduates including around 60 international students. Later, 253 students completed their Masters and over 50 did their PhD's from renowned universities of the country and abroad. MCE is one of the premium institutions of the country providing an excellent environment of learning for the students with focus on innovation, sustainability and diversity in the field of Civil Engineering, Combat Engineering, Explosives Ordnance Disposal and Military Engineering Services. Aim is to develop MCE into a centre of excellence for advanced scientific and technological education and research.

Geotechnical Lab.

Geotechnical is a well-furnished lab with all sorts of geotechnical testing equipment for surface and subsurface exploration. The tests being carried out include Soil Investigation & Lab Testing e.g., Bearing Capacity, Density, Core Extraction & Evaluation, Designing of Retaining Walls & Flood Protection Bunds / Embankment and Stability Analysis for Slopes & Landslides & Remedial Design Measures. The lab is equipped with following key facilities:

a. Tri-axial

PURPOSE OF MACHINE

The tri-axial test allows the shear strength and stiffness of soil and rock to be determined for use in geotechnical design.

TEST RATE

Rs 4000/- sample



b. Consolidation Apparatus

PURPOSE OF MACHINE

The main purpose of consolidation tests is to obtain soil data which is used in predicting the rate and amount of settlement of structures founded on clay.

TEST RATE

Rs 12,000/- sample

c. CBR Apparatus

PURPOSE OF MACHINE

The CBR Apparatus is used for California Bearing Ratio (CBR) in labs (or in-situ) testing method to estimate the bearing value and the mechanical strength of soil.

TEST RATE

Rs 10,000/- sample



d. Electric Oven

PURPOSE OF MACHINE

These ovens generally provide uniform temperatures throughout. Process applications for lab ovens can be for annealing, die-bond curing, drying, and other industrial labor functions. It is also used to determine the moisture content of the soil.

TEST RATE

Rates included in other tests.



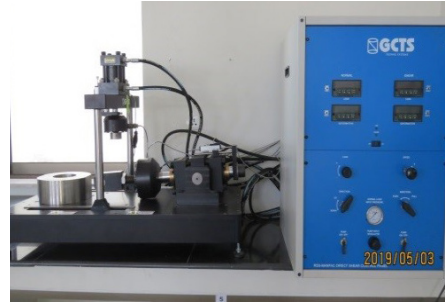
e. Direct Shear Panel

PURPOSE OF MACHINE

A direct shear test is a lab or field test used by geotechnical engineers to measure the shear strength properties of soil or rock material, or of discontinuities in soil or rock masses.

TEST RATE

Rs 3000/- sample



FOCAL PERSON

Engr Rameez Ali Raja

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Concrete Lab.

Concrete lab helps in determining properties of construction materials, their physical and mechanical properties, testing of materials for quality control and quality assurance etc. The lab is equipped with following key facilities:

a. Los Angeles Machine

PURPOSE OF MACHINE

Los Angeles abrasion is used to measure aggregate toughness and abrasion resistance such as crushing, degradation and disintegration. Wear and tear of aggregate is correlated with these properties of aggregate.

TEST RATE

Rs 3000/- sample



b. Electric Oven

PURPOSE OF MACHINE

It is used to dry the samples (sand, aggregate) used in any test. Temperature controls of oven available in our lab is up to 120 degree centigrade.

TEST RATE

Rates included in other tests.



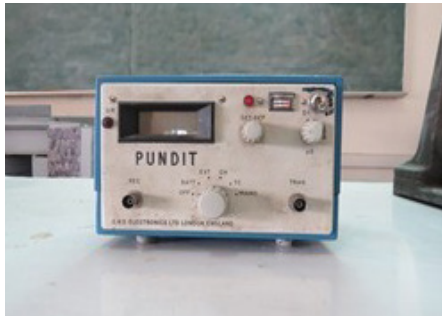
c. Pundit Apparatus

PURPOSE OF MACHINE

It is a non-destructive test used to measure the quality of hard concrete. It gives a velocity value which is correlated with strength and quality of concrete.

TEST RATE

Rs 4500/- sample



e. V-Cat Niddle Apparatus

PURPOSE OF MACHINE

Vicat apparatus is used to find the consistency of cement. It is also used to find initial and final setting time of cement.

TEST RATE

Rs 1500/- sample



d. Slump Cone

PURPOSE OF MACHINE

It is cone used to measure the workability of concrete. Slump is checked for fresh concrete during mixing which shows the workability of concrete. Workability means how easily one can mix, transport, compact and handle concrete on site.

TEST RATE

Rs 800/- sample



f. Schmidt - CT

PURPOSE OF MACHINE

Used to find the compressive strength of existing / built-in structures.

TEST RATE

Rs 2500/- sample



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Transportation Lab.

Transportation is a state of the art Lab, primarily deals in material testing of Asphalt Pavements. The lab is engaged in R&D projects related to roads as well as quality testing of construction industry. Transportation Lab is capable of Traffic Survey & Transportation Planning Studies, Pavement Structural and Geometric Design and Evaluation of Motorways, Highways Rural and Urban Roads, Pavement Management System, Runway/Design/Rehabilitation, Evaluation & Remedial Measures, Pavement Material Testing, Rapid Mass Transit System and Intelligent Transportation System. The lab is equipped with following key facilities:

a. Extraction Machine

PURPOSE OF MACHINE

This apparatus is used to determine the bitumen %age in bitumen mix. Paving Mixture is tested to determine conformity with bitumen content requirement.

TEST RATE

Rs 4000/- sample



b. Ductility Machine

PURPOSE OF MACHINE

This apparatus is used to determine the bitumen %age in bitumen mix. Paving Mixture is tested to determine conformity with bitumen content requirement.

TEST RATE

Rs 2500/- sample



c. Flash & Fire Point Test Apparatus

PURPOSE OF MACHINE

This apparatus is used is designed to determine the temp to which an asphaltic material can be heated safely without the hazard of its catching fire.

TEST RATE

Rs 2000/- sample



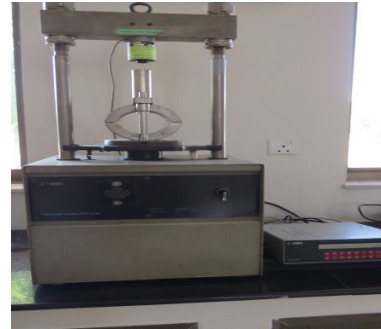
d. Marshal Stability Apparatus

PURPOSE OF MACHINE

The Marshall Stability apparatus is used is carried out for design and testing of bituminous mix. In this test to obtained optimum asphalt content for the type of agg. Mix.

TEST RATE

Rs 10,000/- sample



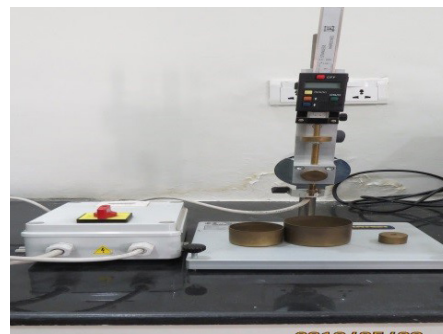
e. Penetrometer

PURPOSE OF MACHINE

This apparatus is used to identify an asphalt material and ensure that proper grade of binder is used for specific job.

TEST RATE

Rs 2000/- sample



f. Softening Point Test Apparatus

PURPOSE OF MACHINE

This apparatus is used to identify an asphalt material and ensure that proper grade of binder is used for specific job.

TEST RATE

Rs 2000/- sample



FOCAL PERSON

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Strength of Materials Lab.

SOM Lab helps in determining construction material properties. The lab is equipped with UTM used for compression, flexure and tensile testing and plays a vital role in developing concepts of students related to structures. The lab is equipped with following key facilities:

a. Universal Testing Machine

PURPOSE OF MACHINE

To carry out tensile test on machined specimen of a metal to determine yield stress, tensile strength, elongation, reduction in area and limit of proportionality to ascertain the quality of the metal.

TEST RATE

Rs 2400/- sample



b. Torsion Testing Machine

PURPOSE OF MACHINE

To carry out torsion test in order to determine Modulus of rigidity, Shear stress at limit of proportionality, The general characteristics of torque and angle of twist of metals.

TEST RATE

For student use.



c. Data Logger

PURPOSE OF MACHINE

It is used to measure the strain in different projects of the students.

TEST RATE

For student use.



d. Thin Cylinder

PURPOSE OF MACHINE

To determine young's Modulus and Poisson Ratio of a Material and study the behavior of thin cylinder under internal pressure.

TEST RATE

For student use.



Structures Dynamic Lab

The structural dynamics lab has been recently established at MCE to study the load-displacement relationship of the scaled model of structures and structural members under the application of monotonic, static cyclic, and dynamic loading.

a. Shake Table

PURPOSE

The uniaxial shake table is state of the art facility which can perform tests for analysis of earthquake resistant structures and structural elements under static cyclic and dynamic cyclic loads. We can also study the performance of various structural models and structural elements under application of real-time recorded earthquake time histories. The facility is used to simulate real-time earthquake ground motion to record the dynamic response of a give structure placed on the table. It has the capacity to accommodate pay load of 12 ton with ground acceleration of $\pm 2g$ & displacement of ± 350 mm.

TEST RATE

Rs 50,000 - 500,000 depending upon nature of testing



b. Protherm Heat Treatment Furnace

PURPOSE

Fire resistance tests on various structural elements can be performed in this furnace. The maximum temperature which can be achieved is 1200°C and it is programmable having 1000 L (35"X35"X51") capacity.

TEST RATE

10,000 - 30,000 per sample depending on time and temperature requirements.



c. Compression Testing Machine

PURPOSE

The machine evaluates the mechanical properties of materials having a working range of 3000KN, motorized with servo control unit. It is specially configured to assess and evaluate the static compressive strength of products, materials, and components. The machine is strain controlled and can conduct split tensile tests as well.

TEST RATE

Rs. 10,000 per sample



d. Quasi- static Actuators

PURPOSE

Servo hydraulic actuators controlled using a digital controller, up to capacity of 1000KN are available in the lab to simulate Quasi-Static Cyclic & Static Loading on the specimen with stroke of ± 250 mm.

TEST RATE

Rs. 25,000- 1,000,000 depending upon nature of testing



e. Strong Floor with Frames

PURPOSE

Strong floor with frames offers great flexibility with adjustable frames provide easily configurable setup to simulate different loadings. It can simulate, up to capacity of 100 tons lateral load. It has the ability to test concrete pipe testing.

TEST RATE

Rs. 6,000- 30,000 depending upon nature of testing



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