

Geotechnical Laboratory

Purpose: To learn determination of index properties of soils, to estimate shear strength of soils by direct shear test, triaxial shear test, vane shear test, and unconfined compressive test. Imparting knowledge of and ability to perform laboratory tests needed to determine foundation design parameters, to estimate the engineering properties of the soils by in-situ tests.

S. No.	Experiment Name	Equipment Used
1	To determine the moisture content of given soil sample	Oven, Balance, Desiccator, Tongs, etc.
2	To determine the Specific Gravity of soil by Pycnometer	Pycnometer (fitted with a conical brass cap screwed at its top), balance (sensitive to 1 gm), glass rod, oven etc.
3	To determine the Particle size distribution of soils	Mechanical Sieve Shaker, Balance, IS sieves, Rubber pestle, and mortar, etc.
4	To determine the liquid limit and plastic limit	Cassagrande liquid limited Device, Grooving Tool, Porcelain Evaporating Dish, Flat glass plate, Spatula, Palette Knives, Balance, Oven, Wash bottle or Beaker, Containers
5	To determine the shrinkage limit of a soil	Evaporating Dish, Spatula, Shrinkage Dish, Straight Edge, Glass Cup, Glass plates, Oven, Sieve 425 microns, Balances, Mercury, Desiccators, etc.
6	To determine the field density of soils by core cutter and sand replacement method	Cylindrical Core-Cutter , Steel Dolly ,Steel Rammer ,Balance ,Palette Knife ,Steel Rule ,Grafting Tool or Spade or Pick axe ,Straight Edge ,Apparatus for Extracting samples from

		the cutter , Apparatus for Determination of water content, Small sand pouring cylinder, Tools for Excavating Holes, Cylindrical Calibrating Container, Plane surface (glass), Metal Containers, Metal tray with hole
7	To determine the OMC and MDD of a soil by proctor test	Cylindrical metal mould, Sample Extruder (optional), Balances, Oven, Container, Steel Straightedge, Sieve 4.75 mm and 19 mm, Mixing Tools, etc.
8	To determine the Unconfined Compression Test of cohesive soil sample	Compression Device Digital, LVDT (0-25 mm), Dial Gauge, Vernier Calipers, stopwatch, Oven, Weighing Balance, Miscellaneous Equipment, etc.
9	To determine the Direct Shear Test of soils	Direct Shear Test Apparatus Digital, Weights, Sample trimmer, LVDT, Balance, Spatula, and a straight edge, etc.
10	To determine the Consolidation Test of a soil	Consolidation Test Apparatus, Consolidation Ring, Porous Stones, Balances Sensitive to 0.01g, oven, Spatula, and a straight edge, etc.
11	To determine the Vane Shear Test of a soil sample	Vane Shear Apparatus
12	To determine the Standard Penetration Test (STP)	Drilling Equipment, Split Spoon Sampler, Drive Weight assembly, Lifting Bail, Tongs, Rope, Screw Jack

DIRECT SHEAR TEST APPARATUS



Wagnaghat, Himachal Pradesh, India

Civil Engineering Department , JUIT-Wagnaghat , Wagnaghat , Himachal Pradesh

173221, India

Lat N 31° 0' 57.1752"

Long E 77° 4' 9.786"

09/11/20 03:52 PM

SIEVE SHAKER



Waknaghat, Himachal Pradesh, India

Civil Engineering Department , JUIT-Waknaghat , Waknaghat,
Himachal Pradesh 173221, India

Lat N 31° 0' 57.1752"

Long E 77° 4' 9.786"

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TRIAxIAL SHEAR TEST APPARATUS



UNCONFINED COMPRESSIVE TEST APPARATUS



SAMPLE EXTRACTOR



Waknaghat, Himachal Pradesh, India

Civil Engineering Department , JUIT-Waknaghat , Waknaghat,
Himachal Pradesh 173221, India

Lat N 31° 0' 57.1752"

Long E 77° 4' 9.786"

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DIRECT SHEAR TEST APPARATUS DIGITAL



SWELL TEST APPARATUS



Waknaghat, Himachal Pradesh, India

Civil Engineering Department, JUIT-Waknaghat, Waknaghat,
Himachal Pradesh 173221, India

Lat N 31° 0' 57.1752"

Long E 77° 4' 9.786"

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OVEN



Waknaghat, Himachal Pradesh, India

Civil Engineering Department , JUIT-Waknaghat , Waknaghat,
Himachal Pradesh 173221, India

Lat N 31° 0' 57.1752"

Long E 77° 4' 9.786"

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PERMEABILITY TEST APPARATUS



Waknaghat, Himachal Pradesh, India

Civil Engineering Department , JUIT-Waknaghat , Waknaghat,
Himachal Pradesh 173221, India

Lat N 31° 0' 57.1752"

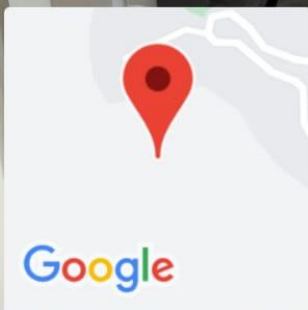
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CONSOLIDATION TEST APPARATUS



GPS Map Camera



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C2/3 Malviya Bhavan Jaypee University of Information Technology,
Himachal Pradesh 173234, India

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Long 77.067032°

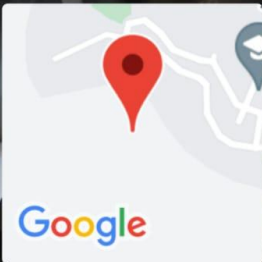
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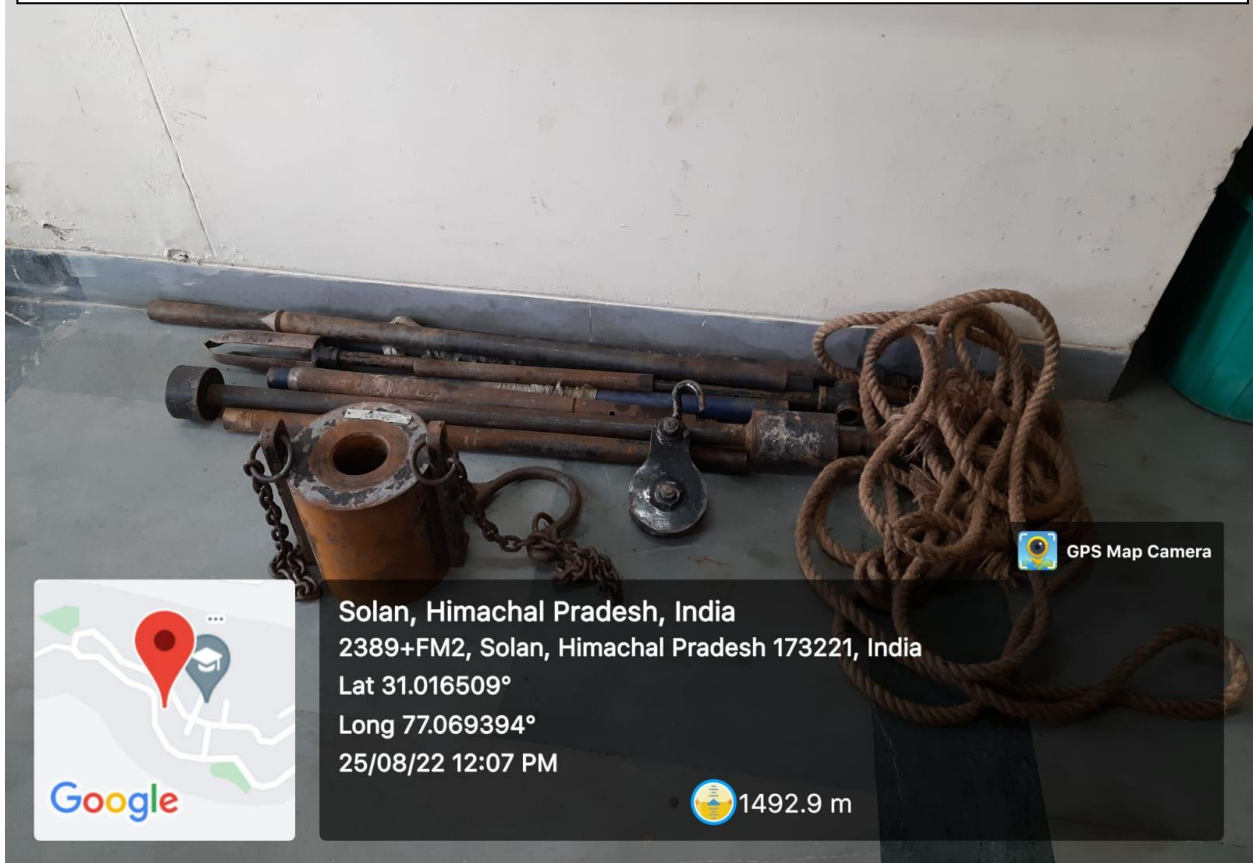
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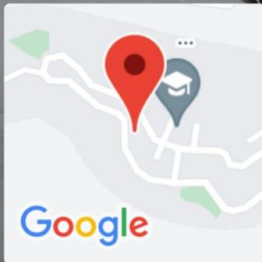
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DCPT TEST APPARATUS



GPS Map Camera



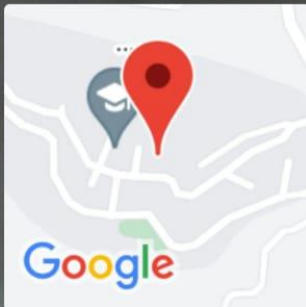
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OVEN



GPS Map Camera



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Jaypee University Of Information Technology, Himachal Pradesh 173221,
India

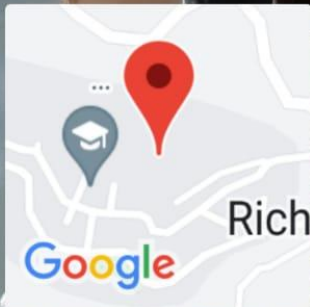
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SIEVES



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Jaypee University Of Information Technology, Himachal Pradesh 173221, India

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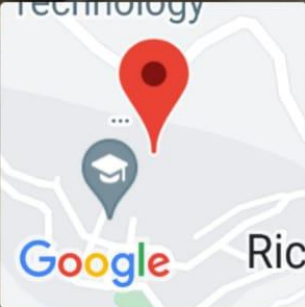
GPS Map Camera

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VANE SHEAR TEST APPARATUS



GPS Map Camera



Solan, Himachal Pradesh, India

Jaypee University Of Information Technology, Himachal Pradesh 173221, India

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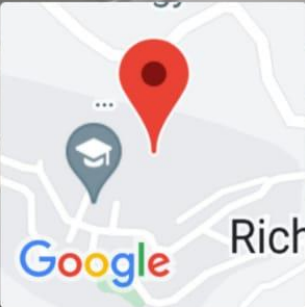
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Laboratory Vane Shear Apparatus

LIQUID LIMIT TEST APPARATUS



GPS Map Camera



Solan, Himachal Pradesh, India

Jaypee University Of Information Technology, Himachal Pradesh 173221,
India

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Long 77.071088°

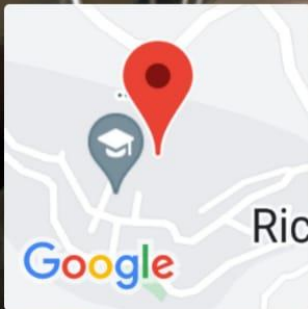
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SAND POURING TEST APPARATUS



GPS Map Camera



Solan, Himachal Pradesh, India

Jaypee University Of Information Technology, Himachal Pradesh 173221,
India

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Long 77.07081°

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1492.9 m

HIGH SPEED STIRRER

