

## Civil Engineering Laboratories

<b>Name of Laboratory</b>	<b>Area (sq.ft.)</b>	<b>Office Incharge</b>
Environmental Engineering Laboratory	750	Puneet Pal Singh Cheema
SOM & Concrete Technology Laboratory	4400	Jagbir Singh
Structure Analysis Laboratory	2300	Harpal Singh
Surveying Laboratory	2700	Baljit Singh Walia
Geotechnical Engineering Transportation Engineering Laboratory	2550	Gurdeepak Singh Prashant Garg
Computational Laboratory	900	Hardeep Singh Rai
Advance Computational Laboratory & Department Library	600	Hardeep Singh Rai
Heavy Testing Laboratory	900	Harvinder Singh
Model Lab	750	Gurbir Kaur

<b>ENVIRONMENTAL ENGG. LAB</b>		
<b>S. NO.</b>	<b>NAME OF EQUIPMENT</b>	<b>APPLICATION</b>
1	<b>pH Meter</b>	To measure the pH value of a water/waste water sample.
2	<b>Jar Apparatus</b>	To determine optimum Alum dose for Coagulation.
3	<b>MEL-MF Lab</b>	To find MPN for the bacteriological examination of water.
4	<b>Turbidity Meter</b>	To find the turbidity of a given waste water/water sample.
5	<b>BOD Track</b>	To find B.O.D. of a given waste water sample.
6	<b>LDO Probe</b>	To measure D.O. of a given water sample
7	<b>Spectrophotometer</b>	To determine the concentration of sulphates in water/wastewater sample.
8	<b>Spectrophotometer &amp; COD Digestion</b>	To determine the COD of a wastewater sample.
9	<b>ION Chromatograph</b>	Determination of fluorides in water sample.
10	<b>Colour Kit</b>	To determine the concentration of colour in a water sample or a wastewater sample.
11	<b>Atomic Absorption Spectrometer</b>	Determination of iron concentration in a water / industrial wastewater sample.

**Major Equipments in The Laboratory (Costing > Rs. 50,000)**

<b>Equipment</b>		<b>Purchase</b>		<b>Installation Date</b>	<b>Present Condition</b>
<b>Name</b>	<b>Make</b>	<b>Date</b>	<b>Cost in lac (Rs.)</b>		
Ion Chromatograph	METROHM	05-05-2014	15.96	06-03-2014	Working
Ultrapure Water Purification System	BIO-AGE	14-02-2014	1.94	14-02-2014	Working
UV-Visible Scanning Spectrophotometer	AGILENT TECHNOLOGIES	30-12-2013	5.27	13-02-2014	Working
BOD/DO meter	HACH	30-12-2013	1.20	28-02-2014	Working

Multi-parameter Meter	HACH	30-12-2013	0.99	28-02-2014	Working
Digestion Block	HACH	30-12-2013	0.82	28-02-2014	Working
Flame Photometer	ELICO	30-12-2013	0.62	04-02-2014	Working
pH/ISE meter	EUTECH	30-12-2013	0.53	28-02-2014	Working
Atomic Absorption Spectrometer	AGILENT TECHNOLOGIES	11-05-2013	12.94	13-02-2014	Working
Turbidity Meter	LOVIBOND	25-12-2010	0.37	25-12-2010	Working
Jar Test Apparatus	POPULAR TRADERS	25-12-2010	0.27	25-12-2010	Working
Color Test Kit	HACH	17-12-2010	0.89	17-12-2010	Working
Digital Spectrometer	HACH	20-11-2007	1.95	20-11-2007	Working
MEL-MF lab	HACH	20-11-2007	2.34	20-11-2007	Working
Multiparameter Meter	HACH	20-11-2007	0.74	20-11-2007	Working
BOD Track	HACH	15-07-2003	1.61	15-07-2003	Working
Digital balance	CITIZEN	15-07-2003	0.74	15-07-2003	Working

**CONCRETE TECH. LAB**

<b><i>S. NO.</i></b>	<b><i>NAME OF EQUIPMENT</i></b>	<b><i>APPLICATION</i></b>
1	<b>Le-Chatelier Flask And Apparatus</b>	To Determine the Specific Gravity and Soundness of cement
2	<b>Vicat Apparatus &amp; Set Of Needles, Compression Testing Machine</b>	To Determine the Standard Consistency, Initial and Final Setting Times of Cement and Compressive Strength of Cement.
3	<b>Set Of Sieves &amp; Shaker, Hot Air Oven, Pycnometer</b>	To Determine the Fineness Modulus, Bulk Density, Water Absorption and Specific gravity of Fine and Coarse Aggregates.
4	<b>Slump Cone, Compaction Factor Apparatus, Vee-Bee Consistometer</b>	To Determine the Slump, Compaction Factor and Vee-Bee Time of Concrete.
5	<b>Drum/Pan Mixer, Weighing Machine, Constant Temperature Water Bath, And Compression Testing Machine.</b>	Mix Design of Concrete by IS methods
6	<b>Compression Testing Machine</b>	To Determine the Compressive Strength of Concrete by Cube and Cylinder.
7	<b>Compression Testing Machine &amp; Beam Testing Machine</b>	To carry out the Split Tensile and Flexural strength of Concrete.
8	<b>Compression Testing Machine</b>	Compressive strength of Brick and Tile as per IS standard.
9	<b>Core Cutter &amp; Grinder, Compression Testing Machine</b>	To find out the core testing of concrete.
10	<b>Mixer</b>	To find out the suitability/quality of concrete admixtures.
11	<b>Constant Temperature Water Bath</b>	To find the water absorption of concrete.
12	<b>Concrete Permeability Apparatus</b>	To find the permeability of concrete.

**Major Equipments in the Laboratory (Costing > Rs. 50,000)**

<b>Equipment</b>		<b>Purchase</b>		<b>Installation Date</b>	<b>Present Condition</b>
<b>Name</b>	<b>Make</b>	<b>Date</b>	<b>Cost in lac (Rs.)</b>		
Corrosion Analyzing Instrument with Software	PROCEQ	01-10-2014	6.67	02-12-2014	Working
Accelerated Curing Tank	AIMIL	01-10-2014	2.79	28-01-2014	Working
Concrete Crack Microscope		01-10-2014	0.69	01-10-2014	Working
Concrete Cutter	AIMIL	01-03-2014	2.25	27-01-2014	Working
LVDT (6 No.)	AIMIL	01-03-2014	1.69	01-03-2014	Working
Signal Conditioner For datalogger	AIMIL	01-03-2014	0.51	22-01-2014	Working
Ultrasonic Pulse vel testing	PROCEQ	09-10-2013	3.77	09-10-2013	Working
Tile Abrasion Testing Machine	AIMIL	09-10-2013	1.47	10-05-2013	Working
Concrete Permeability Apparatus	AIMIL	09-10-2013	1.42	25-09-2013	Working
Accelerated Carbonation Chamber		10-05-2013	6.73	28-10-2013	Working
Automatic Baline's Apparatus	AIMIL	10-05-2013	1.26	18-10-2013	Working
PAN mixer	AIMIL	20-04-2012	1.45	20-04-2012	Working
Rebound hammer (digital)	PROCEQ	03-09-2010	1.50	03-09-2010	Working
Concrete core cutter	ROTHENBERGER	01-05-2009	3.25	01-05-2009	Working
Compression Testing Machine (Digital) 200t	HEICO	19-04-2007	2.25	19-04-2007	Working
Compression Testing Machine (Digital)	ASI	14-02-2000	2.07	18-05-2000	Working
Digital compression testing machine (40t)	ASI	20-03-1999	3.75	30-05-1999	Working
Ultrasonic pulse velocity equipment	PUNDIT	30-11-1988	2.00	01-12-1989	Working

Electronic cyclic loading unit (100t)	HEICO	04-08-1988	2.60	06-10-1988	Working
Universal Testing Machine, 100t	PRECISION	25-03-1987	2.54	25-05-1987	Working

<b>SOM LAB</b>		
<b>S. NO.</b>	<b>NAME OF EQUIPMENT</b>	<b>APPLICATION</b>
1	<b>Universal Testing Machine</b>	Draw Stress Strain curve for Ductile and Brittle material in tension.
		To draw load deflection curve of steel members of various sections.
2	<b>Compression Testing Machine</b>	Draw Stress Strain curve for Ductile and Brittle material in compression.
		To test a mild steel and cast iron specimen in double shear.
		To find the compressive strength of CI,MS and and comparison of their failure patterns.
3	<b>Torsion Testing Machine</b>	Draw shear stress, shear strain curve for ductile and brittle material in torsion strength testing
4	<b>Rockwell Cum Brinell Hardness Testing Machine</b>	To determine the hardness of the given material by Rockwell and Brinell hardness testing machine.
5	<b>Fatigue Testing Machine</b>	To determine the fatigue strength of the material.
6	<b>Izod and Charpy Machine</b>	To determine the impact strength by Izod and Charpy test.
7	<b>Beam Testing Machine</b>	To find the flexural strength of beam made of concrete,wood,steel.

**Major Equipments in the Laboratory (Costing > Rs. 50,000)**

Equipment		Purchase		Installation Date	Present Condition
Name	Make	Date	Cost in lac (Rs.)		
Compression Testing Machine (Digital) 200t	HEICO	19-04-2007	2.25	19-04-2007	Working
Compression Testing Machine (Digital)	ASI	14-02-2000	2.07	18-05-2000	Working
Digital compression testing machine (40t)	ASI	20-03-1999	3.75	30-05-1999	Working
Electronic cyclic loading unit (100t)	HEICO	04-08-1988	2.60	06-10-1988	Working
Universal Testing Machine, 100t	PRECISION	25-03-1987	2.54	25-05-1987	Working

STRUCTURE ANALYSIS LAB		
S. NO.	NAME OF EQUIPMENT	APPLICATION
1	<b>Simply Supported Beam Apparatus</b>	Deflection of a simply supported beam and verification of Clark-Maxwell's theorem.
		To determine the Flexural Rigidity of a given beam.
		To verify the Moment- area theorem for slope and deflection of a given beam.
		To verify the conjugate beam method for slope and deflection of a simply supported beam.
		To verify unit load method for slope and deflection of a simply supported beam.
2	<b>Elastic Properties Of Deflected Beam Apparatus</b>	Deflection of a fixed beam and influence line for reactions.
3	<b>Continuous Beam Apparatus</b>	Deflection studies for a continuous beam and influence line for reactions.
4	<b>Columns And Struts Apparatus</b>	Study of behaviour of columns and struts with different end conditions.

5	<b>Three-Hinged Arch Apparatus</b>	Experiment on three-hinged arch.
6	<b>Two-Hinged Arch Apparatus</b>	Experiment on two-hinged arch.
7	<b>Deflection Of Truss Apparatus</b>	Deflection of a statically determinate pin jointed truss.
8	<b>Rigid Jointed Frame Model</b>	Forces in members of redundant frames.
9	<b>Curved Beam Apparatus</b>	Experiment on curved beams.
10	<b>Unsymmetrical Bending Apparatus</b>	Unsymmetrical bending of a cantilever beam.
11	<b>Deflection Of Beam Apparatus</b>	Deflection of a fixed end beam and verification of Clark-Maxwell's theorem.

<b>SURVEY LAB</b>		
<i>S. NO.</i>	<i>NAME OF EQUIPMENT</i>	<i>APPLICATION</i>
1	<b>Chain, Metallic Tape, Ranging Rods, Arrows</b>	Measurement of distance, ranging a line.
2	<b>Prismatic compass With stand, Ranging Rods</b>	Measurement of bearing and angles with compass, adjustment of traverse by graphical method.
3	<b>Levelling Instrument with stand, Levelling Staff</b>	Different methods of leveling, height of instrument, rise & fall methods.
4	<b>Theodolite with Stand, ranging rods</b>	Measurement of horizontal and vertical angle by theodolite.
5	<b>Tacheometer with stand, levelling staff</b>	Determination of tachometric constants and determination of reduced levels by tachometric observations.
6	<b>Plane table, alidade, U-fork, Ranging rods</b>	Plane table survey, different methods of plotting, two point & three point problem.
7	<b>Theodolite with stand, levelling staff</b>	Determination of height of an inaccessible object.
8	<b>Theodolite with stand, chain, measuring tape, arrows</b>	Setting out a transition curve. Setting out of circular curves in the field using different methods.



9	<b>Total Station with stand, reflecting prism</b>	Study of total station.
10	<b>GPS receiver</b>	Study of GPS.

**Major Equipments in the Laboratory (Costing > Rs. 50,000)**

<b>Equipment</b>		<b>Purchase</b>		<b>Installation Date</b>	<b>Present Condition</b>
<b>Name</b>	<b>Make</b>	<b>Date</b>	<b>Cost in lac (Rs.)</b>		
Total Station	SOKKIA	03-06-2013	2.95	03-08-2013	Working
Total Station	SOKKIA	02-01-2007	5.53	02-01-2007	Working
Digital Theodolite	NIKON	31-07-1989	1.01	31-07-1989	Working

<b>TRANSPORTATION ENGG. LAB</b>		
<b>S. NO.</b>	<b>NAME OF EQUIPMENT</b>	<b>APPLICATION</b>
1	<b>CBR test apparatus</b>	California Bearing Ratio Test
2	<b>Universal Testing Machine (SOM lab)</b>	Crushing Value Test
3	<b>Los Angles Abrasion Machine</b>	Los Angles Abrasion Value Test
4	<b>Impact Value Test Apparatus</b>	Impact Value Test
5	<b>Elongation Gauge</b>	Shape Test (Flakiness and Elongation Index)
6	<b>Penetrometer</b>	Penetration Test
7	<b>Ductility Machine</b>	Ductility Test
8	<b>Ring &amp; Ball Apparatus</b>	Softening Point Test
9	<b>Flash &amp; fire test apparatus</b>	Flash & Fire Point Test
10	<b>Bitumen Extraction Machine</b>	Bitumen Extraction Test
11	<b>Roughometer</b>	Roughness Measurements Test
12	<b>Benkleman Beam Apparatus</b>	Benkelman Beam Pavement Deflection Test
		Benkelman's Beam Method for the design of overlays

13	<b>Plate load test</b>	To determine the subgrade modulus for sub-base supporting flexible & rigid pavements
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**Major Equipments in the Laboratory (Costing > Rs. 50,000)**

<b>Equipment</b>		<b>Purchase</b>		<b>Installation Date</b>	<b>Present Condition</b>
<b>Name</b>	<b>Make</b>	<b>Date</b>	<b>Cost in lac (Rs.)</b>		
Light Weight Deflection Meter	AIMIL	30-12-2013	13.95	20-01-2014	Working
Rougho-meter	HEICO	12-10-2007	1.30	12-10-2007	Working
CBR test apparatus	HEICO	11-11-2006	1.90	11-11-2006	Working
Marshall Stability and Benkelman Beam	HEICO	11-11-2006	1.03	11-11-2006	Working

<b>GEOTECHNICAL ENGG. LAB</b>		
<b>S. NO.</b>	<b>NAME OF EQUIPMENT</b>	<b>APPLICATION</b>
1	<b>Core Cutter Apparatus &amp; sand replacement apparatus</b>	Determination of in-situ density by core cutter method and Sand replacement method.
2	<b>Casagrande apparatus</b>	Determination of Liquid Limit & Plastic Limit.
3	<b>Pyconometer</b>	Determination of specific gravity of soil solids by pyconometer method.
4	<b>Sieve Set &amp; Sieve Shaker</b>	Grain size analysis of sand and determination of uniformity coefficient (Cu) and coefficient of curvature (Cc).
5	<b>Procter test apparatus</b>	Compaction test of soil.
6	<b>Relative density apparatus</b>	Determination of Relative Density of soil.
7	<b>Unconfined Compression Test apparatus</b>	Unconfined Compression Test for fine grained soil.
8	<b>Direct Shear test apparatus</b>	Direct Shear Test
9	<b>Triaxial Test apparatus</b>	Triaxial Test
10	<b>Swell pressure meter</b>	Swell Pressure Test
11	<b>Plate Load Test Apparatus</b>	Plate Load test

**Major Equipments in the Laboratory (Costing > Rs. 50,000)**

<b>Equipment</b>		<b>Purchase</b>		<b>Installation Date</b>	<b>Present Condition</b>
<b>Name</b>	<b>Make</b>	<b>Date</b>	<b>Cost in lac (Rs.)</b>		
Pressure meter	AIMIL	01-04-2014	9.06	20-01-2014	Working
Triaxial Shear Apparatus	HEICO	11-11-2006	5.70	11-11-2006	Working
CBR test apparatus	HEICO	11-11-2006	1.90	11-11-2006	Working

## COMPUTATIONAL LABORATORY

<b>Major Equipments in the Laboratory (Costing &gt; Rs. 50,000)</b>				
<b>S No</b>	<b>Equipment</b>	<b>Make</b>	<b>No</b>	<b>Cost in lac(Rs)</b>
<b>1</b>	<b>Desktop</b>	<b>Hp Desktop 512 MB RAM</b>	<b>36</b>	<b>12.46</b>
<b>2</b>	<b>Desktop</b>	<b>Hp Desktop 2GB RAM</b>	<b>4</b>	<b>1.90</b>
<b>3</b>	<b>PLOTTER</b>	<b>HP DESIGN JET 500</b>	<b>1</b>	<b>1.25</b>
<b>4</b>	<b>COPIER</b>	<b>RICOH AFICIO MP 2000 L2</b>	<b>1</b>	<b>0.83</b>
<b>5</b>	<b>PLOTTER</b>	<b>EPSON STYLUS PRO 9700</b>	<b>1</b>	<b>2.15</b>

## ADVANCE COMPUTATIONAL LABORATORY

<b>Major Equipments in the Laboratory (Costing &gt; Rs. 50,000)</b>				
<b>S No</b>	<b>Equipment</b>	<b>Make</b>	<b>No</b>	<b>Cost in lac(Rs)</b>
1	Desktop	ACER	6	2.36
2	NOTEPAD	TOSIHBA	15	6.10
3	LAPTOP	DELL VOSTRO -1520	6	2.63

<b>List of Licensed Software</b>			
<b>S No</b>	<b>SOFTWARE</b>	<b>No of Licenses</b>	<b>Cost in lac (Rs)</b>
1	AUTOCAD 2D	1	0.25
2	BUILDING ESTIMATOR	1	0.28
3	NUCLEUS	1	
4	AUTOCAD 3D	1	0.30
5	GEOTEKH SOFTWARE SOLUTION (GSS)	1	0.56
<b>List of Licensed Software (Costing &gt; Rs. 50,000)</b>			
6	G.T. STRUDAL	5	1.10
7	STADD PRO v8i	1	1.19
8	GEOMATICS	1	1.56
9	Geo-5	1	1.71
10	ANSYS	1	3.16
11	PLAXIS-2D	1	3.75

	PLAXIS-3D (TEQIP)	1	9.8
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## HEAVY TESTING LABORATORY

Major Equipments in the Laboratory (Costing > Rs. 50,000)		
S No	EQUIPMENT	Cost (Rs)
1	Multipurpose reaction frame with rated capacity: Vertical load = 100t and horizontal load = 50 t	26 lac
2	Data Acquisition system	
3	Transducers different capacities (load cells = 100, 50, 25, 10, 5t and LVDTs= 200, 150, 100, 75, 25mm)	
4	Test tank for testing footings	
5	Hopper for tank filling	
6	Accessories for testing of full scale slabs, beams, footing specimens.	

## Model Lab

### List of Models in lab

1. RAILWAY BRIDGE MODEL
2. COFFER DAM
3. TRUSS JOINT SYPHON AQUEDUCT
4. GRAVITY DAM
5. DISTRIBUTARY HEAD REGULATOR
6. SARDA TYPE FALL/WEIR
7. RIVER HEAD WORK
8. CANAL DROP
9. CLOVER LEAF
10. CANAL INTAKE FOR WATER SUPPLY
11. GATE CONTROL WORKS
12. MODERN PARKING SYSTEM

13. SPACE FRAME
14. CROSS SECTION OF DOUBLE STORY BUILDING SHOWING SANITORY
15. ARRANGEMENT
16. MODEL OF HOUSE
17. WOODEN TRUSS
18. POINTS AND CROSSING OF RAIL LINE
19. CLARIFLOCCULATOR
20. RAPID SAND FILTER
21. PRESSURE FILTER
22. ARCH BRIDGE
23. PLATE GIRDER BRIDGE
24. SUSPENSION CABLE BRIDGE MODEL
25. JUNCTION – STEEL COLUMN BASE
26. LONDON BRIDGE
27. GEOLOGICAL MAP
28. IMHOFF TANK
29. SEPTIC TANK
30. MINERALS
31. CONNECTION
32. NOT IN USE
33. PARKING SYSTEM
34. STRUCTURE MODEL
35. CROSS SECTION OF DOUBLE STORY BUILDING SHOWING SANITORY  
FITTING