

# **CONSULTANCY & MATERIAL TESTING SERVICES**

**(DEPARTMENT OF CIVIL ENGINEERING)**



**VNR VIGNANA JYOTHI INSTITUTE OF ENGINEERING & TECHNOLOGY**

**Vignana Jyothi Nagar, Pragathi Nagar, Nizampet (S.O.),**

**Hyderabad, Telangana State 500 090, India**

**Phone: 040- 2304 27 58 / 59 / 60**

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The Vignana Jyothi is carved and created in the year 1991 by a dedicated group of Industrialists, Entrepreneurs and Professionals who felt that education is the light that wipes out the darkness of an uncertain future among the youth and determined to impart quality education to them without selfish ends.

The Vignana Jyothi is managing

- 1) Vignana Jyothi Public School at Madhura Nagar, Hyderabad
- 2) Vignana Jyothi Institute of Management at Vignana Jyothi Nagar, Pragathi Nagar, Nizampet (S.O.), Hyderabad.
- 3) V.R.S and Vignana Jyothi Residential School at Vignana Jyothi Nagar, Pragathi Nagar, Nizampet (S.O.), Hyderabad.
- 4) **Vallurupalli Nageswara Rao Vignana Jyothi Institute of Engineering and Technology (VNRVJIET), Vignana Jyothi Nagar, Pragathi Nagar, Nizampet (S.O.), Hyderabad.**
- 5) Dr. D. Rama Naidu Vignana Jyothi Institute of Rural Development, Tuniki (V), Kowdipalli (M), Narsapur, Medak (D), Telangana State.

VNR Vignana Jyothi Institute of Engineering and Technology (VNRVJIET) was established in the year 1995 with the approval of All India Council for Technical Education, Government of India, New Delhi and Government of Andhra Pradesh. VNRVJIET is accredited by NAAC "A++" grade.

### **COURSES OFFERED by VNRVJIET:**

<b>A) U.G. PROGRAMMES</b>	<b>Annual Intake</b>
1. Civil Engineering (CE)	120
2. Computer Science and Engineering (CSE)	240
3. Information Technology (IT)	180
4. Electronics and Communication Engineering (ECE)	240
5. Electrical and Electronics Engineering (EEE)	120
6. Electronics and Instrumentation Engineering (EIE)	120
7. Mechanical Engineering (ME)	120
8. Automobile Engineering (AE)	60

9. Computer Science and Business systems	60
10. Computer Science - AI & ML	60
11. Computer Science - Data Science	60
12. Computer Science – IoT	60
13. Computer Science - Cyber Security	60

## **B) P.G. PROGRAMMES**

### **Annual Intake**

1. Structural Engineering (CE)	18
2. Geotechnical Engineering (CE)	18
3. Highway Engineering (CE)	18
4. Power Electronics (EEE)	18
5. Power Systems (EEE)	18
6. Advanced Manufacturing systems (ME)	18
7. CAD/CAM (ME)	18
8. Embedded Systems(ECE)	18
9. VLSI System Design (ECE)	18
10. Software Engineering (CSE)	18
11. Computer Science and Engineering (CSE)	18
12. Computer Networks & Information Security (IT)	18
13. Electronics & Instrumentation (EIE)	18
14. Defence Technology (ECE)	18

VNR Vignana Jyothi Institute of Engineering and Technology is located in Vignana Jyothi Nagar, Pragathi Nagar, Nizampet (S.O.), about 8 Kilometers from Miyapur Junction on Bombay Highway, on inner ring road and is about 6 Kilometers from Jawaharlal Nehru Technological University (JNTU), Kukatpally, via HMT Hills and Pragathi Nagar.

VNR Vignana Jyothi Institute of Engineering & Technology registered spectacular growth in various facets earning the reputation of being one of the top ranking technical institutes in the State of Telangana. It has been in the forefront in the march towards perfection in Technical Education and in taking the fruits of technology to the needy.

The Department of Civil Engineering was started in the year 2001. Civil Engineering Department is accredited for **6 years by National Board of Accreditation (NBA) in**

**Outcome Based Education.** The laboratories of the department have been established with all modern State-of-art infrastructure facilities. All the major equipment are calibrated through NABC accreditations annually Apart from Academics, Department extends its capabilities in testing various materials and Design Consultancy, Non Destructive Testing (NDT). The Department strongly believes in integrating academics with industry.

The department has well qualified and experienced faculty ably supported by highly skilled and competent technicians and guided by external expert from Industry Academics to undertake testing and consultancy works.

The details of the tests and the respective testing fee are enclosed. ***The fee charged for any test is minimum compared to any other organization / institute.*** The location map of the Institute is also enclosed for reference.

Contact information:

Contact No.s: 040 – 2304 27 58 / 59 / 60 (Ext - 2100)

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**VNR Vignana Jyothi Institute of Engineering and Technology,  
Vignana Jyothi Nagar, Pragathi Nagar, Nizampet (S.O), Hyderabad - 500 090**

Phone No.: 040 – 2304 27 58 / 59 / 60, Fax : 040 – 2304 27 61

### **STRUCTURAL DESIGN CONSULTANCY**

- Structural Designs and Drawings of RC Structures including High Rise Buildings
- Industrial Steel structure designs including fabrication drawings

- Proof Checking of Structural designs
- Condition Assessment and Non-Destructive Evaluation of Structures (Testing Facilities Available: Rebound Hammer, Ultra-sonic Pulse Velocity (UPV), Half-cell Potential, Carbonation)

## BUILDING MATERIALS TESTING

S.No.	Name of the Test	Standard Procedure	Amount (Rs.)
1.	Tests on Cement (Physical Properties): i) Fineness (Blaine method) ii) Soundness (Le-Chatlier method) iii) Setting Times (Initial and Final Setting Time) iv) Compressive Strength (3, 7 and 28 days) v) Transverse Strength (3, 7 and 28 days) vi) Drying Shrinkage	IS: 4031 (Part-2) IS: 4031 (Part-3) IS: 4031 (Part-5) IS: 4031 (Part-6) IS: 4031 (Part-8) IS: 4031 (Part-10)	500/- 500/- 800/- 1500/- 2000/- 1000/-
2.	Tests on Aggregates (Coarse and Fine): i) Sieve Analysis ii) Specific gravity iii) Water Absorption iv) Bulk Density v) Bulking of Sand	IS: 2386 (Part-1) IS: 2386 (Part-3) IS: 2386 (Part-3) IS: 2386 (Part-3) IS: 2386 (Part-3)	900/- 500/- 500/- 500/- 500/-
3.	Tests on Concrete: i) Compressive Strength ii) Split Tensile Strength iii) Flexural Strength iv) Modulus of Elasticity v) Bond / Pull-out Strength of Concrete vi) Water Absorption (Sorptivity) vii) Permeability of Concrete viii) Chloride-ion Penetration Test ix) Accelerated Corrosion Test using Impressed Current x) Abrasion Resistance (Underwater Method)	IS: 516 IS: 5816 IS: 516 IS: 516 IS: 2770 (Part-1) ASTM C1585 IS: 516 (Part-2) ASTM C1202 FM 5.522 ASTM C1138	600/- 600/- 900/- 1500/- 1500/- 1500/- 3000/- 3000/- 6000/- 1500/-
4.	Tests on Steel: i) Proof stress ii) Ultimate tensile strength iii) % Elongation	IS: 1786	1500/-
5.	Tests on Other Building Blocks (Clay Bricks, Flyash Bricks, Hollow Bricks, AAC Bricks, CLC Bricks, Wood, etc.): i) Compressive Strength ii) Water absorption	Relevant IS Code	600/- 300/-

S.No.	Name of the Test	Standard Procedure	Amount (Rs.)
6.	Torsion Test		600/-
7.	Tests on Ceramic Tile i) Modulus of Rupture and Breaking Strength ii) Water absorption	IS: 13630 (Part-6) IS: 1360 (Part-2)	1200/- 300/-
9.	Concrete Mix Design: i) Mix Design of Ordinary Concrete, Standard Concrete and High Strength Concrete using OPC, PPC, PSC, OPC + Flyash, OPC + GGBS, OPC + Flyash + Silica fume etc. ii) Self-Compacting Concrete iii) Special Concrete (Fibre Reinforced Concrete, High-Volume Flyash Concrete, Pervious Concrete, etc.)	IS: 10262  IS: 10262 Relevant IS code	6000/-  8000/- 8000/-

### SOIL TESTING

S.No.	Name of testing	Codal Provision	Amount(Rs.)
1	Standard penetration test (Safe bearing capacity)	IS 2131 : 1981	7000/-
2	Dynamic cone penetration test	ASTM D6951 / D6951M - 18	7500/-
3	Plate load test (Safe bearing capacity)	BS 1377 : Part 9 : 1990	10,000/-
4	Undisturbed and disturbed sampling of soil	IS:1892-1979	1000/-
5	In situ moisture content (Rapid moisture meter)	IS : 2720 ( Part II ) - 1173	1000/-
6	Safe Bearing Capacity test from $c, \phi$ values	IS : 2720 ( Part 13 ) - 1986	6000/-
7	Core Cutter and Moisture Content test	IS : 2720 ( Part XXIX ) - 1975	1000/-
8	Specific gravity test	IS:2720(III)-1980	1000/-
9	Sieve Analysis test	IS : 2720 ( Part 4 ) - 1985	1000/-
10	Liquid limit	IS : 2720(Part 5)-1985	800/-
11	Plastic limit	IS : 2720(Part 5)-1985	600/-
12	Shrinkage limit	IS : 2720 ( Part VI ) - 1972	1500/-
13	Proctor Compaction test	IS : 2720 (Part 7 & 8)-I	1000/-

		983	
14	Permeability	IS:2720(Part17)-1986	1500/-
15	Consolidation	IS : 2720 ( Part 15 ) - 1986	3000/-
16	Relative Density	IS t 2720 ( Part 14 ) - 1983	2000/-
17	CBR test Unsoaked	IS : 2720 ( Part 16 ) - 1987	1000/-
18	CBR test soaked	IS : 2720 ( Part 16 ) - 1987	1500/-
19	Unconfined compression test	IS 2720( Part 10): 1991	2000/-
20	Vane shear test	IS 2720( Part 30): 1980	1000/-
21	Triaxial test UU test CU test CD test	IS 2720(Part 12):1981	1500/- 3000/- 6000/-
22	Free swelling Index	IS : 2720 ( Part XL ) - 1977	500/-
23	Swell pressure	IS : 2720 ( Part 41 ) - 1977	3000/-
24	Modified compaction	IS : 2720 (Part 8)-I 983	3000/-
25	Hydrometer Analysis	IS : 2720 ( Part 4 ) - 1985	1500/-
26	Permeability clay soils	IS:2720(Part17)-1986	2500/-
27	Permeability from consolidation	IS : 2720 ( Part 15 ) - 1986	3500/-

## WATER, WASTEWATER, AIR AND INDOOR ENVIRONMENTAL QUALITY TESTING

S.No.	Name of the Test	Standard Procedure	Amount (Rs.)
<b>Water Testing</b>			
1	pH test I. Water II. Soil	IS 3025 (Part 11) IS 2720 ( Part 26)	300/- 400/-
2	Conductivity test I. Water II. Soil	IS 3025 (Part 14) IS 14767 : 2000	300/- 400/-
3	Acidity	IS 3025 (Part 22)	300/-
4	Alkalinity	IS 3025 (Part 23)	300/-
5	Total Hardness test	IS 3025 (Part 21)	400/-
6	Turbidity test	IS 3025 (Part 10)	300/-
7	Total Dissolved solids	IS 3025 (Part 16)	300/-
	Total Suspended Solids	IS 3025 (Part 17)	300/-
8	Total Solids	IS 3025 (Part 15)	300/-
9	Dissolved oxygen	IS 3025 (Part 38)	300/-
10	Measurement of i) Chlorides ii) Flourides iii) Nitrates iv) Ammonia	IS 3025 (Part 32) IS 3025 (Part 60) IS 3025 (Part 34) IS 3025 (Part 34)	300/- 300/- 300/- 300/-
11	Measurement of Heavy Metals:		For Each 500/-
	Zinc	IS 3025 (Part 49)	
	Cadmium	IS 3025 (Part 41)	
	Lead	IS 3025 (Part 47)	
	Chromium	IS 3025 (Part 52)	
	Lithium	APHA Method	
	Calcium	IS 3025 (Part 40)	
	Magnesium	IS 3025 (Part 46)	
	Sodium	IS 3025 (Part 46)	
	Selenium	IS 3025 (Part 56)	
	Cobalt	ASTM D3558 - 15	
	Copper	IS 3025 (Part 42)	
	Gold	APHA-3500-Au	
	Iron	IS 3025 (Part 53)	
	Manganese	IS 3025 (Part 59)	
12	Optimum Coagulant Dosage	IS 3025 (Part 50)	500/-
13	Sulphate	IS 3025 (Part 24)	500/-
14	Free Residual Chlorine	IS 3025 (Part 26)	500/-



<b>S.No.</b>	<b>Name of the Test</b>	<b>Standard Procedure</b>	<b>Amount (Rs.)</b>
15	Measurement of Phosphates	Stannous chloride method	300/-
<b>WASTEWATER TESTING</b>			
16	Total Solids	IS 3025 (Part 15)	300/-
17	Total Suspended Solids	IS 3025 (Part 17)	300/-
18	Total Dissolved Solids	IS 3025 (Part 16)	300/-
19	Total Fixed Solids (Inorganic)	IS 3025 (Part 18)	500/-
20	Total Volatile Solids (organic)	IS 3025 (Part 18)	500/-
21	Total Settleable Solids	Imhoff Cone	500/-
22	Dissolved Oxygen	IS 3025 (Part 38)	800/-
23	Biochemical Oxygen Demand	IS 3025 (Part 44)	1000/-
24	Chemical Oxygen Demand	IS 3025 (Part 39)	1000/-
25	Total Organic Carbon	SWMM 5310	1000/-
26	Nitrate	IS 3025 (Part 34)	500/-
27	Ammonia	IS 3025 (Part 34)	500/-
28	Phosphorous	IS 3025 (Part 31)	500/-
29	Chloride	IS 3025 (Part 32)	500/-
30	Alkalinity	IS 3025 (Part 23)	500/-
31	Oil and Grease	IS 3025 (Part 39)	700/-
<b>Air and Indoor Environmental Quality</b>			
32	Particulate Matter 10	IS 5182 (Part 23)	3000/-
33	Carbon-di-oxide	ASTM D6245 - 18	500/-
34	Carbon Mono-oxide	IS 5182 (Part 10)	500/-
35	Light Intensity	IS SP 72	300/-
36	Ventilation	IS 3362 - 2004	300/-
37	Temperature	ASTM D6245 - 18	300/-
38	Humidity	ISHRAE	300/-
39	Oxygen	ISHRAE	300/-
<b>Engineering Designs</b>			
40	Design of Water and Waste water treatment plants	As per CPHEEO Manual	Negotiable
41	Design Rain Water Harvesting	IS 15797 : 2008	Negotiable
<b>Environmental Geotechnology Testing</b>			
42	Soil organic content test	IS 2720 (Part 22)	600/-
<b>Related to Concrete</b>			
43	Chloride in Concrete Sample	IS 14959 (Part 2)	600/-
44	Sulphate in Concrete Sample	IS 3025 (Part 24)	600/-

## HIGHWAY MATERIAL AND TRANSPORTATION ENGINEERING

S.No.	Name of the test	Sample Quantity	Amount (Rs.)
<b>Road Aggregate</b>			
1.	<b>Physical properties of aggregate</b> ( <i>IS 2386 – Part 1, 3, 4</i> ) (i) Aggregate Impact value (ii) Aggregate Crushing value (iii) Aggregate Hardness value (iv) Flakiness & Elongation Index (v) Specific gravity & water absorption (vi) Angularity Number	25 kg	3,000/-
2.	Sieve Analysis ( <i>IS 2386 – Part 3</i> )	5 kg	1,000/-
3.	Soundness with Na <sub>2</sub> SO <sub>4</sub> / MgSO <sub>4</sub> (5 Cycles) ( <i>IS 2386</i> )	5 kg	1,000/-
4.	Stripping Value Test	1 kg	1,000/-
5.	Aggregate Polishing Stone Value-PSV & Skid Resistance ( <i>BS 812 P 114</i> )	25 kg	15,000/-
<b>Paving Bitumen – (<i>IS 73: 2016, - IS 1203, 1205, 1206, 1208, 1448</i>)</b>			
6.	(i) Penetration at 25°C, (ii) Absolute viscosity at 60°C (iii) Kinematic viscosity at 135°C (iv) Flash point (v) Softening point (vi) Tests on residue from rolling thin film oven test (a) Viscosity ratio at 60°C; (b) Ductility at 25°C	5 kg	3,500/-
7.	<b>Binder ageing</b> ( <i>ASTM D 2872</i> ) Short term ageing - RTFO	1 kg	4,000/-
8.	Loss on heating ( <i>ASTM D – 6; 1754</i> )	1 kg	
9.	<b>Bitumen composition</b> ( <i>ASTM D 4124</i> ) Asphaltenes and Maltenes fractions (Corbett separation)	1 kg	3,000/-
10.	<b>Binder extraction</b> ( <i>IS 13826 Part 7</i> ) Cold solvent method (SOXHLET / Centrifugal)	5 kg	2,000/-
11.	Distillation process for RAP binder	As per requirement	2,000/-
<b>Bituminous mixes</b>			
12.	Bituminous mix design ( <i>Manual series – 2, ASTM D 6927, MORTH 5<sup>th</sup> Rev.</i> )	25 Kg	7,500/-
13.	In-Direct Tensile Strength Test ( <i>ASTM D 6931</i> )	10 Kg	2,500/-
14.	Resilient modulus ( <i>ASTM D 4123, IRC: 37 2018</i> )	Sample are prepared	22,000/-
15.	Tensile strength ratio (TSR) - Moisture sensitivity ( <i>ASTM D 6931</i> )		2,500/-

16.	Rutting Characteristics ( <i>AASHTO-T324</i> ) Immersion type and Non Immersion type	/ core specimen	15,000/-
17.	Fracture Properties ( <i>ASTM D 8044 – 16</i> ) (i) Fracture energy, Fracture Toughness (ii) Cracking resistance index (iii) Critical strain energy release	s / Three trails for each mix	10,000/-
18.	Core cutting for field evaluation (100 and 150 dia. mm)	As per field requirements	Negotiable

S.No.	Name of the test	Sample Quantity	Amount (Rs.)
<b>Non Bituminous mixes</b>			
19.	Wet mix design – as per <i>MORTH 5<sup>th</sup> revision</i>	25 Kg	6,000/-
20.	Granular base / sub base mix design as per <i>MORTH 5<sup>th</sup> revision</i>	25 Kg	3,000/-
21.	Soil Stabilization mix design as per <i>MORTH 5<sup>th</sup> revision</i>	25 Kg	3,000/-
<b>Pavement field evaluation</b>			
22.	Field density ( <i>ASTM D2950 / D2950M</i> ) Relative density / compaction and mix gradation	3 Nos. for each mix	1,500/-
23.	Field CBR – ( <i>ASTM D6951</i> ) Using Dynamic Cone Penetrometer	As per field requirements	Negotiable
24.	Field stiffness – ( <i>ASTM E2583 - 07(2020)</i> ) Light-Weight Deflectometer (LWD) used for Sub-grade/sub-soils and unbound base layers, granular layers and backfilling materials		Negotiable
25.	Plate load test ( <i>IS 9214 (1979)</i> )		Negotiable
26.	Axle load survey ( <i>IRC SP-72</i> )	Per location	30,000
27.	Benkelman Beam Deflection studies ( <i>IRC: 81 1997</i> )	As per field requirements	Negotiable
28.	Pavement roughness using MERLIN apparatus		Negotiable
<b>Traffic studies / Design (as per MORTH – IRC guidelines)</b>			
29.	Traffic and Transportation studies - Demand Estimates (i) Classified Volume Count (ii) O-D Survey - Road Side Interview Method (iii) Turning Movement Surveys (iv) Speed studies (v) Parking studies (vi) Transportation planning using VISUM	As per client requirements	Negotiable
30.	Pavement Investigations and Maintenance strategies – HDM –		Negotiable

	IV		le
31.	Detailed Design of Pavements (i) Geometric Design using Mx Road / Civil 3D (ii) Pavement Design <i>as per IRC:37 2018</i> (iii) Drainage System		Negotiable
32.	Road safety audit ( <i>IRC: SP:88 2010</i> ) ( <i>three of our faculty are certified road safety auditors from CSIR CRRI – IRC and MoRTH</i> )		Negotiable
33.	Junction improvement studies – Traffic signal design and evaluation using VISSIM.		Negotiable
34.	Traffic street furniture ( <i>IRC: 67 2012; IRC: 35 2015</i> ) (i) Road marking (ii) Traffic signs (iii) Street lighting		Negotiable

## LAND SURVEYING

S.No	Name of the Test	Amount (Rs)
1	Boundaries Location	2000/- acre (Minimum 2500/-)
2	Contouring	2000/- acre

**Note:**

- 1) Required quantity of samples shall be submitted with a test request letter mentioning the nature of sample, tests required, protocol to be followed and complete address and other contact details of the customer.
- 2) GST and other applicable taxes would be charged at the prevailing rates
- 3) For site visit, client has to arrange the Transport facility.
- 4) For site visit, client has to pay Rs.500/- per day to a Faculty member and Rs.300/- per day to accompanying supporting staff.
- 5) The payment should be done in the form of D.D. drawn in favor of “VNR Vignana Jyothi Institute of Engineering and Technology” payable at Hyderabad or payment can be done in the form of cash at Institute Account section towards the consultancy charges.

# DETAILS OF MAJOR EQUIPMENT AVAILABLE

## CAD LABORATORY - LIST OF SOFTWARES

S.NO	Name of software	License details	Amount (Rs./-)
1	STAAD. ProV8i (Bundle package with 24 Softwares)	5+200 student license	5,30,101
	Bentley Academic Select Renewal		1,80,522
2	E-Survey	36	2,19,700
3	VISSIM+VISUM	1	4,20,002
4	HDM 4	10	90,548
5	IBM SPSS	1	1,00,184
6	PLAXIS 2D	12	8,06,628.00
7	NISA CIVIL	3	1,26,000
8	PRIMAVERA	2	2,50,000
9	VISUAL MODFLOW FLEX 2012.2	10	1,21,099
10	GEOSTUDIO 2012	1	4,72,500
11	CTTRAN 2012	1	1,26000
12	POLLUTE 7	1	1,40,553
13	Auto CAD(Open Source)	-	-
14	QGIS(Open Source)	-	-

## CONCRETE LABORATORY

Equipment Name	Figure
Pavement Core drilling machine (BT &CC)	
Compressive Testing Machine (Capacity: 2000KN)	
Pan Mixer	
Drum Mixer	
Vibrating Table	
Vibrating Machine	

Flexural Strength Machine



Ultra Sonic Pulse Velocity Apparatus



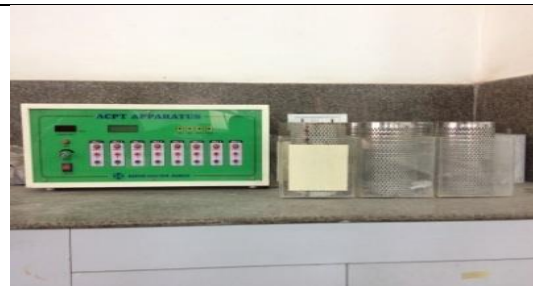
Rebound Hammer



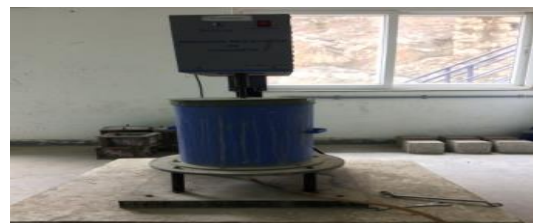
RCPT Apparatus



ACPT Apparatus



Abrasion Test Apparatus of Concrete



Concrete Permeability Apparatus



Humidity Chamber



Ultra Sonic Pulse Velocity Apparatus



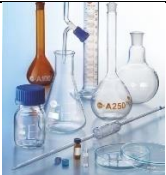







Shrinkage moulds and length comparator










## ENVIRONMENTAL ENGINEERING LABORATORY




S. No	Equipment	(Make)	Image	Parameters can be measured
1	pH Meter,	Adwa 110		pH of water and soil
2	Turbidity meter	Lamotte 2020 turbid meter		Turbidity of water and waste water
3	Titration setup	Borosil titration set up		Acidity, Alkalinity, Hardness, Chlorides etc
4	Floculator	Cintex		Optimum dosage of coagulant
5	Water bath	Swan Envirotech		Slow heating of sample (useful in measurement of total solids, suspended solids and dissolved solids)
6	Do meter	Adwa AD 630		Dissolved oxygen in water and waste water
7	Atomic absorption spectrophotometer	SPV spectronics L-AS205		Heavy metals like Na, Ca, Zn, Pb, Cr, Cd, Cu, Ag, Se, Ag, etc in water, waste water and soil
8	Respirable dust sampler	APM 460BL		Particulate matter, Sox, Nox, Co2 in air

9	Multi parameter analyser	Hach 40QD		Nitrates, chlorides, ammonia and fluorides in water, waste water and soil
10	Indoor air quality monitor	Dwyer AQH20		Co <sub>2</sub> , Co in air
11	phosphate kit	Lamotte 3655-sc		Phosphates in water, waste water and soil
12	Sound meter	3M SD-200 sound detector		Noise levels
13	Imhoff cone	Borosil		Settleable solids in water
14	Conductivity meter	Adwa 310		Conductivity of water, waste water and soil
15	Centrifuge	Remi		Separation
16	Muffle furnace	Cintex		Organic and inorganic matter in soil







17	TDS meter	AD410 Adwa		Total dissolved solids in water and waste water
18	Hot air oven	Cintex		For moisture removal, dryigetc

## GEOTECHNICAL ENGINEERING LABORATORY

S.No	Name of the test	Equipment
1	Direct shear test	
2	Unconfined compressive test	
3	CBR test	

4	Swell Pressure test	
5	Triaxial test	
6	Flex wall permeameter	

## TRANSPORTATION ENGINEERING LABORATORY




S.No	Name of the Equipment	Make & Model	Remarks
1.	Marshall Stability Apparatus	PSI & Indian Make	
2.	Brookfield Rotational Viscometer	PSI & US Make	 Rotational Viscosity test for Base binder
3.	Plate Bearing Apparatus & its Accessories	AIMIL & Indian Make	
4.	Accelerated Polishing Apparatus & its Accessories	AIMIL & UK make	
5.	Rolling Thin Film Oven & its Accessories	AIMIL & UK make	
6.	Loss on Heating & its Accessories	AIMIL & Indian make	
7.	LVDT & Data Acquisition Software for Marshal Stability Apparatus	Spranktronics & Indian Make	

8.	Compression Testing Machine & Bitumen Pentrometer & its Accessories	Accro Tech & Indian Make	
9.	Repeated Load Test Setup	Spranktronics & Indian make	
10.	Automatic Compactor	AE&C & US Make	
11.	Viscosity Testing Equipment	EIE Instruments & Indian Make	
12.	VISSIM & VISUM Software	Sunovatech & PTV	
13.	Pavement Core Drilling	Delta Technologies & Indian Make	
14.	Immersion type Wheel Rutting Equipment	GEOTRAN & Indian Make	
15.	Roller Compactor	GEOTRAN & Indian Make	



16.	Modified Marshall Stability Apparatus	Sree Vani Tech Enterprises	
17.	Abrasion Testing Apparatus	Vivasvath Technologies	
18.	5 In CH Data Logger, Frequency And Load Controller	GEOTRAN & Indian Make	
19.	HDM IV 10 Licences	TRL, USA	
20.	Servo Controlled Testing Digital frame - SCB, ITD test etc.	HEICO	
21.	Core cutting apparatus	HILTI	

## STRENGTH OF MATERIALS LABORATORY

S.N O	Equipment Name, Capacity & Make	Photo
1	<ul style="list-style-type: none"> <li>❖ Computerised UTM (100T)</li> <li>❖ M/s. Fine Spavy Associates &amp; Engineers Pvt Ltd.</li> </ul>	
2	<ul style="list-style-type: none"> <li>❖ Universal Testing Machine (20 T)</li> <li>❖ M/s. HEICO Ltd.</li> </ul>	
3	<ul style="list-style-type: none"> <li>❖ Torsion Testing Machine (FIT 20)</li> <li>❖ Fine Spavy Associates &amp; Engineers Pvt. Ltd.</li> </ul>	
4	<ul style="list-style-type: none"> <li>❖ Compression Testing Machine (200 T)</li> <li>❖ Techno Instruments</li> </ul>	
5	<ul style="list-style-type: none"> <li>❖ Hardness Testing Machine</li> <li>❖ KB 3000 (1 No.) –Brinell, KAS (1 No.) – Rockwell Krystal Elmec.</li> <li>❖ RAB 250 (2 No's) Brinell cum Rockwell, Saroj</li> </ul>	



	Engineering Udyog Pvt.Ltd.	
6	<ul style="list-style-type: none"> <li>❖ Impact Testing Machine (FIT 300)</li> <li>❖ Fine Spavy Associates &amp; Engineers Pvt. Ltd.</li> </ul>	
7	<ul style="list-style-type: none"> <li>❖ Spring Testing Machine (2 No's)</li> <li>❖ M/s HEICO Ltd.</li> <li>❖ Shanta Engineering</li> </ul>	