

**BAPATLA ENGINEERING COLLEGE :: BAPATLA**  
**CIVIL ENGINEERING DEPARTMENT**

**LABORATORY DETAILS April 24, 2023**

<b>S. NO</b>	<b>NAME OF LABORATORY</b>	<b>SPACE (SQ.M)</b>	<b>COST OF EQUIPMENT (LAKHS)</b>
1	Material Testing Lab	268	75.61
2	F.M, Hydraulics & H.M Lab	402	10.04
3	Geotechnical Engg. Lab	263	20.45
4	Transportation Engg. Lab	154	21.49
5	Environmental Engg. Lab	154	15.36
6	Surveying Stores	104	28.07
7	Engineering Geology Lab	53.57	4.99
8	Computer Center	90	
	Hardware	-----	51.63
	Software	-----	34.23
	<b>TOTAL</b>		<b>262.23</b>

## 1. MATERIAL TESTING LAB

<b>Name of the Equipment</b>	<b>Cost</b>
Computer Interfaces Compression Testing Machine (3000 KN)	7,32,777.00
Computer Interfaced Universal Testing Machine (1000 KN)	7,32,766.00
Non Destructive Testing Equipment (NDT)	5,41,993.00
Brinell Harness Testing Machine	3,50,064.00
Rockwell Testing Machine	1,10,500.00
Torsion Testing Machine	1,32,158.00
Vibrating Table (2 m X 1m)	99,736.88
Digital Spring Testing Machine	98,381.00
Impact Testing Machine	97,682.00
Accelerated curing tank	92,278.00
Honnsfield tensograph. (condemned)	57,065.00
Concrete mixer	30,122.00
Vickers Hardness Tester	29,895.00
Compression Testing Machine (500 KN)	23,388.75
Needle vibrator	18,647.00
Dial gauges, strain gauges	16,559.75
Vibrating Table	15,080.00
Vibrating Machine for Moto Cubes	12,075.00
Electronic Weighing Machine (12 Kg)	11,081.00
Electronic Weighing Machine (100 Kg)	18,281.00
Beam Moulds	12,470.00
Cement tensile testing machine	7,711.20
Shear Test Attachment With Disc	5,899.89
Is Sieves	5,650.00
Cement Moulds	5,737.00
Is Sieves (Aggregate)	4,900.00
Magnetic Bases With Dial Gages	4,304.40
Cube Mould Cast Iron (150 Mm Cube)	4,108.00
Vicat's Apparatus	4,050.00
Cylindrical Mould 15cmx30cm Height.	3,685.50
Electric Motor For Vibrating Table	3,675.00
Mould (Cast Iron) for 150mm Cube.	3,496.50
Lateral Extensometer	2,230.20
Beam Moulds	23,310.00
Cube Mould Cast Iron (150 MM Cube)	51,975.00
Cylindrical Mould 15 cm x 30 cm Height	24,570.00
Loading Frame	22,32,000.00
Compaction factor Machine	3,402.00
Channels	36,875.00
Shake Table	9,51,937.00
Density bottle	6,620.00
Self – Compacting Concrete equipment's	14,439.52
Density baskets	7476.48
Concrete Pan Mixer	1,65,183.48
Slump Test Apparatus	1,417.50
Le-Chatelier mould & Water bath	27,813.78
<b>Total Cost Rs:</b>	<b>75,61,478.35</b>

## 2. GEO TECHNICAL ENGG. LAB

<i>Name of the Equipment</i>	<i>Cost (Rs.)</i>
Electronic Triaxial Test Aparatus	4,32,900.00
Electronic Shear Test Apparatus	2,26,413.00
Electronic Three Gang Bench Type Consolidometer	1,41,750.00
SPT Equipment and Accessories	73,902.38
Proctor Automatic Compactor	48,375.00
Hydraulic Jack with hand operated pump and 3m connecting pipe capacity 200t	47,250.00
CBR apparatus motorized	41,952.00
Swell pressure test apparatus	30,375.00
Universal Permeameter	24,675.00
Static cone Penetrometer 30KN(SCPT)-1 no	18,900.00
Relative density Apparatus-1 no	14,950.00
Plate Bearing Test Apparatus –1 no	14,638.00
CBR Moulds - 6 no's	14,188.00
Electrical operated sieve	13,500.00
Odeometer only- 1 no	13,244.00
Constant Pressure System (0.10 to0.5 kg/cm <sup>2</sup> )-1 no	12,265.00
Sieves-20cm dia Brass frame-20.00mm-;4.75 mm-11no's 2.00mm-6 no's;1.00mm-5 no's	11,750.00
Liquid limit Motorized	11,475.00
Split Spoon Samplers -2 no's	10,077.00
Peremeability Moulds and Porous stones	10,600.00
SPT-drill rods -11 no's	9,918.00
Surcharge Weights-slotted -18 no's	8,857.00
Hot air Oven chambers-3 no's	8,100.00
SPT –kit -1 set	8,005.00
Motorised Direct shear Apparatus-1 no	7,275.00
Test Sieves	6,300.00
Consolidation Machine-1 no	5,100.00
Pore Pressure Apparatus-0.20kg/cm <sup>2</sup> complete set:1	5,040.00
Shrinkage Limit	5,040.00
Laboratory CBR test Apparatus-Hand operated-1no	4,975.00
Liquid limit hand operated	4,500.00
A-Drill rods -6 no's	4,899.00

CBR Test Appartius	3,600.00
Vicksberg Penetrometer(Proving ring type)-1 no	3,670.00
Infra red Moisture meter-1no	3,760.00
Triaxial cell with stationary Bushing-1 no	2,940.00
Sensitive volume change gauge - 1no	2,620.00
Sieve shaker –Hand operated-1 no	2,320.00
Sampling outfit-Heavy duty –1 no	2,870.00
Vane shear Apparatus-Motorised -1no	2,800.00
Split Spoon Sampler 5 No's	33,500.00
A Drill Rods 1.5 Mtr 5 No,s	15,000.00
A Drill Rods 0.75 Mtr 5 No,s	11,000.00
Adopters 10 No,s	6,000.00
Test Sieves Brass 20 Cm Dia 4.75mm, 2.36mm, 2.0mm, 600mic, 150mic, 75mic, 425mic, Lid and Pan	8,800.00
Borosil Measuring Jar 1000 ml, 100 ml, 50 ml,	21,900.00
Big Sqatula 12 No's	960.00
Electronic Balance 5 kg capacity with 1 gm 1 no 5,500-00	5,500.00
Weigh Box x 0.5 mg -200 gm 5 no's	6,000.00
Unconfined Compression Testing Moulds 1 no	3,020.00
Pycnometer Bottles 6 No's	5,100.00
Density Bottles 50 ml 60No's 2,700-00	2,700.00
Set of liquid Limit ASTM Grooving tool Casagrande Grooving tool and Gauge Block 2 set's	1,200-00
Permeability moulds, variable head, constant head, CBR moulds Complete set, Dial Gauge, Proctors Light Compaction Moulds, Soaking Tank, Aluminium tins, PlasticJars(50ml,100, 250,500,1000ml), Weighing Balance.	319843-00
Drill Rods of length 2.00 m (8), 1.5m(8),1.0m(8),0.5m(8) , split spoon samplers(10) and adopters(20)	290044-00
<b>Total</b>	<b>20,45,135-38</b>

### 3. SURVEYING LAB

<b>Name of the Equipment</b>	<b>Cost</b>
PENTAX Electronic Total Stations	12,30,000.00
TOPOCON Electronic Total Station	3,35,000.00
Electronic Theodolites	3,40,000-00
Vernier Theodolites	5,15,085.00
Plane Table sets	24,500.00
Automatic Levels	2,30,100.00
Levelling staves	30,000.00
Prismatic Compasses	6,730.00
Wooden 4 m long	2,100.00
Surveyors Compass	794.00
Abney level	7,245-00
Penta graph	12,600-00
Planimeter	10,080-00
Garmin GPS	53,550-00
Miscellaneous (Ranging rods, tapes, cross staves etc)	10000-00
<b>Total Cost Rs.</b>	<b>28,07,784-00</b>

**4. COMPUTER APPLICATIONS IN CIVIL ENGINEERING LAB****Hardware**

<b>S.No</b>	<b>Name of the Equipment &amp; Software</b>	<b>Cost Rs. Ps.</b>
<b>01</b>	<b>HP PRO TWR280 G9 INTEL 12<sup>TH</sup> GEN CORE I7-12700 PROCESSOR , 16GB DDR4 RAM, 512GB SSD, HP 19.5 LED MONITOR, OPTICAL MOUSE, HP KEYBOARD</b>	<b>2242000.00 (38 nos.)</b>
<b>02</b>	<b>Desktop HP 280 G4(Core I7 8<sup>th</sup> gen) 16 GB RAM, 1 TB HDD, HP 19.5” LED Monitor, USB Optical Mouse &amp; KB</b>	<b>610500.00 (11 Nos)</b>
<b>03</b>	<b>DELL Optiplex 3020 Minitower Desktop PC- I7-4790(Quad core 3.6GHz, 8 MB cache, W/HD Graphics 4600), 16 GB RAM(2*8) 1600 MHz DDR3 Non ECC 1TB HDD, 18” LED Monitor – 33 at RP-23 lab(1 to Academic advisor, 2 to CACE lab)</b>	<b>1664000.00 (36 Nos)</b>
<b>04</b>	<b>HP Pro 3335 MT PC: AMD Athlon II X 2 B26 CPU/2GB DDR3-1333 RAM/500 GB 7200 RPM SATA HDD/HP Pro333 x/334/338x country kit/HP Pro 3335 series MT 300W APFC Chassis/HP USB Key Board &amp; Optical Mouse/HP LV 1911 40.0 cm LED Monitor</b>	<b>604856.86 29(Nos)</b>
<b>05</b>	<b>Intel core 2 duo 2.8 GHz CPU Intel DG35 mother board/3.24GB RAM/365 GB HDD.Acer TFT LCD23”/DVD Optiarc RW AD-7220A/ MS Optical mouse &amp;KB</b>	<b>29900.00 (1 Nos)</b>
<b>06</b>	<b>D-Link switches (16 port – 01) (24 port – 01)</b>	<b>12,000.00</b>
<b>TOTAL:</b>		<b>5151256.86</b>

Software's

01	Auto Desk Software (20 User)	2,08,000.00
02	Up gradation of Staad Pro 2002 to Staad Pro 2006 (5 User)	1,12,240.00
03	Ms Project Standard Education (10 User)	90,000.00
04	STAAD Pro V8i India Structural (STAAD BECN Bundle Perpetual License with IS Design Code BECN Bundle Consisting of STAAD Pro-STAAD Foundation Advanced & STAAD Beava software to work on WIN XP/WIN 7 5 User 21-06-2013	3,89,543.00
05	SELECT Subscription on STAAD Pro BECN Bundle Consisting of STAAD Pro & STAAD Foundation Advanced & STAAD Beava Software for Three Years 21-06-2013	92,697.00
06	SELECT Subscription on STAAD Pro BECN Bundle Consisting of STAAD Pro & STAAD Foundation Software for Three Years (14-06-2016 to13-06-2019)	1,08,775.00
07	ESRI India GIS Academy Program (EIGAP Plus 50 Users) – 03 years subscription. Training: E-Learning+03 days (1 Batch for 3 days, maximum 10 participants) of training as per the module agreed, training material and certification from ESRI India. 21-03-2019	8,26,000.00
08	Renewal of SELECT Subscription on Academic Perpetual offering for a period of 3 years (2019-2022) 13-07-2019	1,41,600.00
09	MATLAB Part No.ML Master License 31600366 Bapatla Engineering College License 4059835 Academic/concurrent /Perpetual 31-12-2021	4,68,592.00
10	ArcGIS Software Academic EIGAP-Basic 13-09-2022	9,86,015.00
	<b>Total Cost</b>	<b>3423462.00</b>

Hardware	51, 63,256.86
Software	34, 23,462.00
	-----
Total	85, 86,718.86

## 5. ENVIRONMENTAL ENGINEERING LAB

<b>Name of the Equipment</b>	<b>Cost</b>
Shimadzu Atomic Absorption Spectrophometer	11,98,029.00
Imhoff Cones	865.76
Conductivity meter	6175.00
Muffle furnace , Amil Products(New)	34200.00
Lab Centrifuge	16,000.00
Digital pH meters (2)	20178.00
Hot air oven	33,000.00
Muffle Furnace	15,000.00
Wall mounted charts	12,388.75
Digital DO meter	11,286.00
Laboratory Oven,2007	12,000.00
Electronic Weighing Scale	9,739.00
Water still 8 lit/hr	1497.82
Hot Plate Rectangular size	2,600.00
Nephelo turbidity meter	7,904.00
Jar test apparatus	31490.00
Imported Jackson turbidity meter	4,737.20
Glassware	119402.05
Total Cost	15,36,492.58



**6. HYDRAULICS & HYDRAULIC MACHINES LAB**

<b><i>Name of the Equipment</i></b>	<b><i>Cost</i></b>
Open Channel	3,45,774.00
Kaplan Turbine (Vertical Shaft Type) Test Rig.	1,52,250.00
Wind Tunnel (Demonstration)	1,51,200.00
Francis Turbine Test rig	57,876.00
Variable speed Centrifugal Pump Test Rig	36,000.00
Variable speed reciprocating Pump Test Rig	34,500.00
Major Loss and Minor Loss Apparatus	33,750.00
Orifice and Mouthpiece Apparatus	33,000.00
Pelton Turbine.	32,240.00
Apparatus For Impact Of Jet On Vanes.	31,500.00
Reynolds Apparatus	24,000.00
Bernoulli's Apparatus	22,500.00
Associated Runners & Impellers with Stand (6 Impellers + 4 Runners)	16,006.00
Venturi Meter & Orifice Meter Apparatus	13,650.00
Pipe friction apparatus	7,748.00
Irrigation Models	6,270.00
Stop Watches	6,390.00
Total Cost Rs:	<b>10,04,654.00</b>

## 7. TRANSPORTATION ENGINEERING LAB

<i>Name of the Equipment</i>	<i>Cost</i>
Compression Testing Machine	80,309.00
Benkelman Beam	50,625.00
Thermo Statically Controlled Oven	27,585.00
C.B.R. Apparatus	27,586.00
Thermo Statically Controlled Oven	21,062.00
Ductility Testing machine	10,804.00
Marshall Stability Apparatus	10,343.00
Top Pan Electronic balance	10,500.00
Los angeles Abrasion Testing Machine	9,712.00
Proving Ring	7,072.00
Deval Attrition Testing Machine	6,510.00
Water Bath small	9,900.00
Bitumen extractor, manual	11,000.00
Penetrometer automatic type Elect. Operated, with timer	19,800.00
Ring and Ball apparatus electrically operated as per IS:1205	16,591.00
Flash point and fire point apparatus Cleveland IS:1448(P-69)	9,800.00
Tar viscometer with 4mm & 10 mm orificers, IS:1206, BS:2000	10,850.00
Kinematic Viscometer	75,668.00
Fine Aggregate Sieves Set	36,023.00
Dynamic Cone Penetrometer	20,868.00
Merlin	26,831.00
Standard Tar Viscometer	14,528.00
Automatic Compactor for Bituminous mixes	1,98,594.00
Marshall moulds ( 4" & 6" Dia)	68,021.00
Electric Oven	80,845.00
Abrasive Charge	6,441.00
Brookfield Viscometer-RVDV2T-EZ, Thermosel, Spindle-21	9,45,738.00
Elastic Recovery mould	12,744.00
Asphalt Mixer Theoretical Density Meter	71,903.00
Thin Film Oven	84,960.00

Buoyancy Balance	1,13,634.00
Bitumen Penetration Kit	4,190.00
Ductility Mould with base plate	48,278.00
<b>Total Cost Rs:</b>	<b>21,49,315-00</b>

## 8. GEOLOGY LAB

<b>Name of the Equipment</b>	<b>Cost</b>	
Micro Processor Based Resistivity Meter	1,25,195.00	
Garmin Make Model etrex vista	16,603.00	
Satellite Imageries – PAN, LISS-III, PAN+LISS-III, WiFS	24,750.00	
Seismic Timer, Single Channel	21,840.00	
Signal Stacking Resistivity Meter (Model SSR-MP-ATS)	253,110.00	
Rocks & Minerals for Lab Display 7.5 cm approx.	57,565.00	
Geological Specimens		
Streak Plates		
3D Raised Relief Models on Interior of the Earth		
3D Raised Relief Models on Rivers in Action (Water Cycle)		
3D Raised Relief Models on Rocks & Volcanoes		
3D Raised Relief Models on Volcanic System		
3D Raised Relief Models on Formation of Rocks		
3D Raised Relief Models on Model Earth Quake		
3D Raised Relief Models on Folds & Faults		
3D Self Framed Models on Rock Cycle		
<b>Total Cost Rs</b>		<b>499,063.00</b>