Bundelkhand Institute of Engineering & Technology, Jhansi

Short Term Tender Notice No. BIET- 1/2017

The tender documents for the **Purchase of Equipment of Civil Engg. Deptt.** Tender can be downloaded from the website, <u>www.bietjhs.ac.in</u> or can be obtained from the store & purchase section. A separate demand draft for the cost of tender documents is required along with tender documents.

Tender opening and submission details are given below-

1. Name of firm with contact number & Email Address

- 2. Tender cost (Non refundable) is **Rs. 5750/-**
- 3. Tender submission is up to 28.03.2017 at 2:00 PM
- 4. Tender opening on 28.03.2017 at 2:30 P.M.
- 5. Opening place of tender is conference room, administrative block BIET Jhansi.

Signature & Seal of Tenderer

Bundelkhand Institute of Engineering & Technology, Jhansi (U.P)

Department: Civil Engineering

Particular of EMD

LAB	Laboratory	EMD (In Rupees)
NO.		
CE-1	Fluid Mechanics lab equipments	26,000/-
CE-2	Soil Mechanics Lab Equipments	74,000/-
CE-3	Structural Analysis lab	12,000/-
CE-4	Concrete Laboratory	50,000/-
CE-5	Geo informatics Lab	32,000/-

Detail Specifications of Fluid Mechanics Lab Equipments

S. No.	Details of Equipment	Qty.	Rate	Total Amount
1	Kaplan turbine test rig	1		
	The setup should consist of a scroll casing housing a			
	runner. The runner should have hub and airfoil vanes			
	mounted on it. The water is to be fed to the turbine by			
	means of a centrifugal pump. A transparent hollow			
	cylinder made of acrylic should be fitted in between			
	the draft tube and the casing for the observation of			
	flow through the vanes. Pressure and vacuum gauges			
	should be fitted at the inlet and outlet of the turbine.			
	Sufficient quantity of mercury should be supplied.			
	Tachometer should be supplied. A manual should be			
	supplied which gives the details of the apparatus and			
	procedure of the experiments along with sample			
	calculations.			
	specification:			
	Output power :1HP			
	Discharge :3500 LPM (approx.)			
	Supply head :5m			
	Dynamometer :Rope brake dynamometer			
	Sump tank :300 Ltrs capacity			
	Water circulation :centrifugal pump Standard make,			
	capacity SHP, three phase, 2800 rpm (approx.)			
	Speed :1000 rpm (approx.)			
	Runner : With adjustable curved vanes			
	Discharge measurement: Venturimeter with			
	manometer Control panel Starter, mains indicator,			
2	MCB	1		
2	Francis turbine test rig	1		
	The water is to be led to the turbine by means of a			
	should be mounted on a central steinless steel shaft and			
	the other end is to be connected to a brake			
	arrangement A transparent acrylic sheet must be			
	provided for observation of flow on to the runner			
	Load is applied to the turbine with the help of a brake			
	arrangement A draft tube should be fitted on the outlet			
	of the turbine. Pressure and vaucem gauges should be			
	fitted at the inlet and outlet of the turbine. Sufficient			
	quantity of mercury should be supplied. Tachometer			
	should be supplied. A manual should be supplied			
	which gives the details of the apparatus and procedure			
	of the experiments along with sample calculations			
	Specifications: Output power: 1HP Discharge: 1000			
	LPM (approx.) Supply head: 10m Dynamometer			

	Dana hustra demonstration		
	:Rope brake dynamometer		
	Sump tank: 200 Ltrs capacity Water circulation		
	centrifugal pump: Standard make, capacity 5HP,three		
	phase,2800 rpm (approx.)		
	Speed: 1000 rpm (approx.) Runner: Having curved		
	vanes Discharge measurement :Venturimeter with		
	manometer Control papel Starter mains indicator		
	MCB for circuit protection		
2	Delton turbine test rig	1	
3	The extension of many an article the	1	
	The setup should consist of runner on which the		
	buckets are mounted. The water is fed to the turbine		
	through stainless steel a nozzle with stainless steel		
	spear by means of a centrifugal pump, tangentially to		
	the runner. Flow of water in to the turbine is regulated		
	by adjusting the spear position by the help of a given		
	hand wheel. The window of the turbine casing should		
	be provided with a transparent acrylic sheet for		
	observation of flow on to the buckets. Load is to be		
	applied to the turbine with the help of a brake		
	dynamometer. Pressure gauge should be fitted at the		
	inlat of the turbine to measure the total supply head to		
	the turbine. Sufficient questity of mercury should be		
	the turbine. Sufficient quantity of mercury should be		
	supplied. Lachometer should be supplied. A manual		
	should be supplied which gives the details		
	of the apparatus and procedure of the experiments		
	along with sample calculations.		
	Specifications:		
	Output power:1HP, Discharge: 500 LPM (approx.)		
	Supply head: 25m, Dynamometer: Rope brake		
	dynamometer. Sump tank: 200 Ltrs capacity Water		
	circulation centrifugal nump: Standard make capacity		
	5HP three phase 2800 rpm (approx.)		
	Snood :1000 rpm (approx.)		
	Speed .1000 Ipili (approx.)		
	Impelier: Material brass, bucket type		
	Nozzle: Material stainless steel Spear: Material		
	stainless steel Discharge measurement :Venturimeter		
	with manometer Control panel: Starter, mains		
	indicator, MCB for overload protection		
	Tanks should be made of stainless steel		
4	Centrifugal pump test rig (with step cone pulley	1	
	arrangement)		
	It should be a self contained unit operated on closed		
	circuit basis containing a stainless steel sump tank		
	The setur should consist of a contributed nume		
	(minimum 111D) counted with an AC motor Elever of		
	(imminum TIF) coupled with an AC motor. Flow of		
	water is measured by using a stamless steel measuring		
	tank and a stop watch. Vacuum gauge must be fitted		

on the suction line and pressure gauge is fitted on		
delivery line to measure the pressure. Electronic		
Energy meter of standard make must be supplied for		
measuring input. Step cone pulley arrangement must		
be provided for running the pump for at least three		
different speeds. The whole setup should be well		
designed and arranged in well quality painted		
structure. A control panel should be provided which		
comprises of an on/off switch, starter, mains indicator		
etc. Stop watch and tachometer must be supplied. A		
manual should be supplied which gives the details of		
the apparatus and procedure of the experiments along		
with sample calculations.		
Total	4	

Detail Specifications of Soil Mechanics Lab Equipments

S. No.	Details of Equipment	Qty.	Rate	Total Amount
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1	Commuten controlled Trievielsheen test encoustus	1		
1	Computer controlled Triaxialshear test apparatus	1		
	with all accessories. Conforming to IS: 2720 and			
	BS 1377			
	 Fully computer controlled operation 			
	• Automated strain rate control system for			
	soils			
	• Capable of conducting UC, UU, CU, CU			
	Bar. CD tests			
	• Confining pressure and back pressure			
	setting through computer			
	• Load capacity 50kN			
	 Load capacity 50 kiv Vortical clearance 800 mm 			
	• Ventical clearance 800 mm			
	Horizontal clearance 525 mm			
	• Platen travel 100 mm			
	Platen diameter 150mm			
	• Strain rate programmable from			
	0.00001 mm/min to 10 mm/min			
	 Triaxial cell to accommodate specimen 			
	size up to 50mm or 100 mm dia			
	Programmable pressure range			
	0.05kg/cm ² to 10 kg/cm ²			
	• Pressure controlling accuracy is within +/-			
	1%			
	• Online plotting of load vs displacement			
	stress vs strain curve.			
	 Built in safety features for over load 			
	over travel and pressure			
	 Advanced analysis software and it 			
	should be user friendly			
2	Fully automatic Direct or residual shear	1		
2	apparatus with all accessories	1		
	Conforming to IS: 2720 and PS 1277			
	Comorning to 15. 2720 and BS 1577			
	• Pote of strain 0,0001 to 10mm/min			
	• Rate of strain 0.0001 to 10 mm/mm			
	• Load range capacity $\pm 7-0.3$ km			
	• Displacement range +/-1 mm			
	• Online plotting of load vs displacement,			
	stress vs strain curve.			
	• Built in safety features for over load,			
	over travel and pressure			
	• Advanced analysis software and it			
	should be user friendly.			
	 Displays maximum value of dilation 			
	angle along with C and ϕ values.			
3	Consolidation apparatus with	1		
	all accessories Test is			

	performed as per IS 2720.		
	• Loading unit 20kg/cm ²		
	 Consolidation cell 60mm dia and 20mm 		
	ht.		
	• Dial gauge 5 x 0.002mm		
	• Stress up to 10kg/cm^2		
	Flectronic, three gang bench type consolidometer	1	
4	Electronic, three gang bench type consolidometer	1	
	• Fixed ring consolidation cell for 60 mm		
	dia and 20 mm thick specimen complete		
	with two porous stones, cutting ring		
	and loading pad.		
	• The set of weights to give the proper		
	pressure intensity on the test specimen.		
	• LVDT type sensors		
	• Stroke +/- 10mm		
	 Linearity deviation +/- 1% 		
	• Repeatability +/- 0.1%		
	• Hysteresis +/- 0.5%		
	• Excitation 2 V Rms, 2Khz		
	sinusoidal		
	• Temperature range 0 to 50 $^{\circ}C$		
	• Advanced analysis software and it		
	should be user friendly.		
5	Proctor mould with all accessories including	2	
	compacting rod		
	• Compaction mould 100 mm internal dia		
	and 127.3 mm height 1000ml volume		
	complete with collar and base plate.		
	All made of mild steel tie rods of mild		
	steel and wing nuts for clamping.		
	• Compaction rammer, light, made of		
	mild steel 2.6 kg weight, 50mm dia		
	compaction face, 310 mm controlled		
	free vertical fall.		
	• Compaction mould 150 mm internal dia		
	and 127.3 mm height, 2250 ml volume,		
	complete with collar and base plate. All		
	made of mild steel tie rods of mild steel		
	with wing nuts for clamping.		
	• Compaction rammer, neavy, made of mild steel 4.80 kg weigh 50mm die		
	compacting face 450 mm controlled		
	free vertical fall		
6	Sieve shakers	2	

	 Maximum seven sieves of 150 mm /200 mm diameter accommodate. Holding the sieves and adjustable top clamping plate should be there. The operating gear assembly is enclosed in an oil bath fitted with a transparent oil level indicator window. Suitable for operation on 220 V, 50Hz and single phase supply. 		
7	Weighing balance	2	
	• The Balance should have a capacity of 1 kg. having sensitivity 0.01gm with four Digits. It should be a table-Mounted Model. The Balance should be made from Non Corrosive & highly durable Material. It Have a transferrable cover for protection from dust & other. It should have a Battery Back-up for 30 minute working.		
8	Hot air oven	2	
	 Electrically operated thermostatically controlled. Inside chamber made up with stainless steel Air circulating fan and digital temperature controller 		
9	Specific gravity bottle/Density bottle	10	
	 50 ml density bottle with capillary vent leak proof stopper and As per IS: 2720 part –I suitable for determination of specific gravity of fine soils. 100 ml density bottle with capillary vent leak proof stopper and As per IS: 2720 part –I suitable for determination of specific gravity of fine soils. 	each	
10	Vacuum pump	2	
11	Thermometer range 0 100 0 with ISI meeter	10	
12	Pinette with 25ml	10	
13	Conical funnel	10	
14	Standard sieves (4 7mm to 75 microns size) with	6	
	lid and pan (4.75mm, 2.00mm, 1.00mm, 425µm, 212µm,	each	

	150µm, 75µm) with steel pan and containers		
15	Hydrometer with full set (as per IS: 2720 part - IV)	3	
		each	
	• Particle size analysis of soil in		
	suspension when it has more than 10%		
	of $\overline{75}$ micron IS sieve passing material.		
	The scale on the hydrometer is marked		
	from 0.995 to		
	1.030 in terms of density of suspension		
	at room temperature.		
	• It is single marked 1000ml glass		
	cylinder without pour out, used to		
	prepare the soil suspension for the		
	determination of density by using		
	hydrometer. Supplied complete with the		
	rubber bung.		
17	1000ml, 100ml, 50ml glass measuring cylinders	10	
18	1000ml beaker	10	
19	Mechanical stirrer (as per IS: 2720 part - IV)	2	
	• Pedal speed of 8000 to 10,000 rpm		
21	• Dispersion cup made of brass and barrie	2	
21	Casagrande's apparatus with accessories	2	
	• The apparatus consists of a brass cup a		
	crank and cam mechanism mounted on		
	a rubber base of specified bardness. A		
	brass pin having a knurled end for easy		
	removal holds the bass cup. The height		
	of fall of the cup can be adjusted by a		
	horizontal lead screw.		
	• Device is fitted with a drop counter		
	to automatically record number of		
	drops of the cup.		
	• Supplied grooving tool type 'A' and		
	gauging block as per IS: 9259 and IS:		
	2720 part-V.		
22	Moisture cans {i.e. small steel or aluminium cup	200	
	to place the soil sample in the oven for drying		
23	3mm dia brass rod	6	
24	Smooth glass plate of dimension	6	
	200mmx150mmx3mm	-	
25	Shrinkage limit apparatus with all accessories (as	3	
	per IS: 10077 and test performed as per IS: 2720		
	part-VI)		
	• /5 mm square prong plate made of 3		

	mm thick acrylic sheet with three		
	metal prongs.		
	• 75 mm square plain plate made of 3		
	mm thick acrylic sheet		
	• Stainless steel shrinkage dish		
	45mm in dia 15 mm deen		
	 Glass cup with ground edge 50 mm 		
	to 55 mm dia. 25 mm deen		
	Elevible energy with 80 mm long 20 mm		
	• Flexible spatula with 80 min long, 20 min		
26	Maraumy	11ra	
20	Mercury		
27	In situ density of soil – sand jar cone apparatus $(1, 2, 2, 2, 3, 3, 3, 3, 3, 3, 3, 3, 3, 3, 3, 3, 3,$	3	
	(as per IS: 2720 part XXVIII).	each	
	~		
	• Sand pouring cylinder small		
	\circ 115mm internal dia with		
	conical funnel and shutter.		
	 Calibrating container, 100 mm 		
	inner dia and 150 mm deep with		
	flange 50 mm wide.		
	• Metal tray 300 mm square x 40		
	mm deep with a 100 mm dia		
	hole at the centre.		
	• Sand pouring cylinder large		
	\circ 215mm internal dia with		
	conical funnel and shutter.		
	• Calibrating container, 200 mm		
	inner dia and 250 mm deep with		
	flange 75 mmwide		
	\sim Metal tray 450 mm square x 50		
	mm deen with a 200 mm dia		
	hole at the centre		
28	Pod for digging soil	3	
20	$\frac{1}{1} \frac{1}{1} \frac{1}$	10	
29	Soil sample avtruder with hydraulie iock system	10	
50	(motorized)	1	
	(motorised)		
	II-duesdie is de seriet startes of 600 mm		
	• Hydraulic jack with stroke of 600mm		
	and thrust force of 9000 kgf. It has a		
	control valve for the control of direction		
	of movement of the piston and a relief		
	valve to limit the load between 9000kgf		
	and 10000kgf		
	• Adopter and adopter plates for 38, 50,		
	75, 100, 150 mm tubes.		
31	Desiccators, 150 mm	4	
32	Vane shear apparatus with all accessory	1	

	(motorized)		
	 Set of four springs, one each of 2kgcm, 4kgcm, 6kgcm and 8kgcm. A vane of size 12x24 mm long with a vane rod Specimen container to take a specimen of 50mm dia and 75mm high Wooden carrying case for the complete apparatus Torque head is electrically driven by a small reduction geared motor with a 		
33	Permeability apparatus (as per IS: 2720 part -17, IS 11209)	2	
	 Compaction permeameter mould 1000 ml capacity, clamped between top and bottom drainage plates having recess for porous stones. Supplied along with a false bottom plate for use during compaction of soil in permeameter and extension collar. Stand pipe panel, with three glass tubes of 6mm, 10mm and 20mm dia, one meter long, supplied with wooden meter scale and 3 meter rubber tubing. 		
34	Trays for mixing soil (all dimension are in mm) 600 x 450 x 50	5 each	
	$\begin{array}{rcl} \square & 450 \ge 300 \ge 40 \\ \square & 300 \ge 250 \ge 40 \end{array}$		
35	Porcelain dish or china clay dish of 3 different	8	
	sizes		
36	Electronic heaters	2	
37	Plastic tubs (size 50cm dia and 20 cm height)	10	
	Total		

Detail Specifications of Structural Analysis Lab Equipments

S. No.	Details of Equipment	Qty.	Rate	Total Amount
1	Universal Frame	6		
2	Bending Moments and Shear Force	1		

3	Elastic Beam	1	
4	Suspension Bridge (Rigid Floor)	1	
5	Suspension Bridge (Three Hinged)	1	
6	Shear Centre	1	
7	Two Hinged Arch	1	
8	Three Hinged Arch	1	
9	Dial Gauge (L.C 0.01 mm)	6	
	Total		

Detail Specifications of Concrete Lab Equipments

S.	Details of Equipment	Qty.	Rate	Total
No.				Amount
	Universal Testing Machine (2000 KN) with data logger and PC interface (with PC) with installation and commissioning: Maximum Capacity : 1000kN, 1 st Measuring range (kN): 0- 200 Least count: 100, 2 nd Measuring range: 200-1000, least count (N): 1000; Clearance for tension Test (mm): 50-850, Clearance for compression test (mm): 0-850, Ram Stroke (mm): 250, Piston Speed at no load (mm/min): 0-80; Clearance Between Column (mm): 750; Connected load (kW): 3.5; Operating Voltage : 400-440; Phase : 3; Clamp Jaw for round specimen (mm): 10-25, 25-40,, 45-70, clamp jaw for flat specimen (mm): 0-20, 20-40, 40-60, 75; Dia of platens (mm) for compression test: 250; Computer Control with user friendly software. Computer should be PC of at least 15, 4 GB Ram, 500GB harddisk and other requirement for running UTM of above configuration. Software should be window base and user friendly, saving and retrieving data files, online display of load and displacement, Online plot of graph,	1		
2	Motorized Compression testing machine (5000 KN) Capacity Max : 5000 kN, Max Ram Travel (mm): 50, Day Light clearance (mm): 330, Platen Size : 165 mm, Horizontal Clearance: 225 mm; with three gauge: 0-250 kN, 0-500 kN, 1-1000 KN, Electricity : Single Phase, 220-250Volt	1		
3	Flexural Test Apparatus (1000 kN) Motorized, suitable load gauge, operate on 220 volt, single phase,	1		
4	Aggregate crushing value Apparatus 75 mm size as per IS: 2386 Part IV	2		
6	Sieve shaker (motorized)	2		

	Complete motorized set to shake the sieves of 30 cm size Power Supply: Single Phase 220V		
7	Air permeability app (Blain Type) complete set as per IS: 5516	1	
8	Analytical balance Digital top pan 200/0.001gms Digital top pan 200/0.001gms	2	
9	Density basket Standard size with bulk density measuring cylinder as per IS 2386 part III	2	
10	Le chattelier mould app. Complete set to determine soundness of cement as per IS: 5514	1	
11	Vicat at needle apparatus Complete set IS 4031: 5513 for determining the normal consistency and t he setting times of cements. Complete with one each of vicat mould, glass plate, initial nee dle, final needle and consistency plunger. Scaled reading up t o 40 mm.	1	
12	Hot Air Oven Item Specification: Size in cm (W x D x H): Internal 60 x 60 x 90 Temperature range: Ambient $+5^{\circ}$ C to 250° C; preferably motorized air circulation with silicon door gasket. Double wall design with outer cabinet and inner chamber made up of stainless steel. Number of shelve should be 4. Digital Temperature Indication and Control with accuracy $\pm 1^{\circ}$ C with a LED display	1	
	Total		

Detail Specifications of Geoinformatics Lab Equipments

S. No.	Details of Equipment	Qty.	Rate	Total
				Amount
1	Theodolite	5		
	a) The theodolite shall generally comply with IS			
	2976-1964.			
	b) The tripod shall generally comply with IS 8330-			
	1997.			
	c) Specifications image erect magnification 30 x			
	effective diameter of			
	d) objective ≥ 40 mm field of view 1°30' to 1°40'			
	shortest focusing			
	e) distance 2.0 m			
	f) Resolving power ± 2.5 to 3.0 sec			

	g) minimum focusing distance ≤ 2.0 m		
	h) Stadia ratio 1:100 • stadia multiplier 100 • stadia		
	i) Sensitivity of level plate 20 sec per 2 mm run		
	i) Vertical circle level 1 sec per 2 mm run		
	graduation error		
	k) Horizontal circle 1 sec (least count of		
	micrometer) vertical circle 1		
	1) sec (least count of micrometer)		
	m) Accessories: Diagonal eve-piece two (one for		
	telescope, one for		
	n) micrometer) dark glasses dark green, light		
	green, light blue water		
	o) proof cover made of durable plastic material		
	plumb bob; adopter		
	p) plug one unit tool-set spanner, screw driver, etc.		
	– one set lens		
	q) cover set one set cleaning brush one unit		
	r) k) Tripod 1600 mm well seasoned wood or light		
	& strong alloy		
	s) telescopic with mounting for battery,		
	illumination unit & clamping		
	t) arrangement for the instrument centering		
	provision 30 to 50 mm		
2	Dumpy Lovel	5	
2	Dumpy Level	5	
2	Dumpy Level To measure, transfer or set horizontal lines and also	5	
2	Dumpy Level To measure, transfer or set horizontal lines and also used to determine relativeheight and distance among	5	
2	Dumpy Level To measure, transfer or set horizontal lines and also used to determine relativeheight and distance among different locations.	5	
2	Dumpy Level To measure, transfer or set horizontal lines and also used to determine relativeheight and distance among different locations. -To be provided with a tripod stand	5	
2	Dumpy Level To measure, transfer or set horizontal lines and also used to determine relativeheight and distance among different locations. -To be provided with a tripod stand - As per ISI Specification No. IS : 4590-1967. With talaaaaaa 205 mm/12" lang. Internal forwaring Ouisly	5	
2	Dumpy Level To measure, transfer or set horizontal lines and also used to determine relativeheight and distance among different locations. -To be provided with a tripod stand - As per ISI Specification No. IS : 4590-1967. With telescope 305 mm/12" long , Internal focussing, Quick Setting ture Control artics EDECT - IMACE Very	5	
2	 Dumpy Level To measure, transfer or set horizontal lines and also used to determine relativeheight and distance among different locationsTo be provided with a tripod stand - As per ISI Specification No. IS : 4590-1967. With telescope 305 mm/12" long , Internal focussing, Quick Setting type, Coated optics, ERECT - IMAGE, Very 	5	
2	 Dumpy Level To measure, transfer or set horizontal lines and also used to determine relativeheight and distance among different locationsTo be provided with a tripod stand - As per ISI Specification No. IS : 4590-1967. With telescope 305 mm/12" long , Internal focussing, Quick Setting type, Coated optics, ERECT - IMAGE, Very Precise. The horizontal brass circle graduated to read 6	5	
2	 Dumpy Level To measure, transfer or set horizontal lines and also used to determine relativeheight and distance among different locationsTo be provided with a tripod stand - As per ISI Specification No. IS : 4590-1967. With telescope 305 mm/12" long, Internal focussing, Quick Setting type, Coated optics, ERECT - IMAGE, Very Precise. The horizontal brass circle graduated to read 6 minutes with vernier having provision to preset zero	5	
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2	 Dumpy Level To measure, transfer or set horizontal lines and also used to determine relativeheight and distance among different locationsTo be provided with a tripod stand - As per ISI Specification No. IS : 4590-1967. With telescope 305 mm/12" long , Internal focussing, Quick Setting type, Coated optics, ERECT - IMAGE, Very Precise. The horizontal brass circle graduated to read 6 minutes with vernier having provision to preset zero quickly for any desired horizontal direction. All moveable parts including axis set and foot screws are made of gunmetal and brass. Packed in ABS box with Aluminum telescopic stand in canvas cover.	5	
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2	 Dumpy Level To measure, transfer or set horizontal lines and also used to determine relativeheight and distance among different locations. -To be provided with a tripod stand - As per ISI Specification No. IS : 4590-1967. With telescope 305 mm/12" long , Internal focussing, Quick Setting type, Coated optics, ERECT - IMAGE, Very Precise. The horizontal brass circle graduated to read 6 minutes with vernier having provision to preset zero quickly for any desired horizontal direction. All moveable parts including axis set and foot screws are made of gunmetal and brass. Packed in ABS box with Aluminum telescopic stand in canvas cover. Planimeter Sliding bar pattern for measuring areas from drawings and maps with an accuracy within 2% suitable for a wide range of application including construction, packed in original case with instruction	5	
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	Aluminium Stand complete with all accessories.		
	On the circumference of the circle, it is to be be		
	provided with a brass ring, which, with another		
	ring fitted with glass, make a kind of box for the		
	needle, which is suspended on a rivet in the center		
	of the circle. The whole apparatus to be mounted		
	on a staff, with a ball-and-socket joint for easy		
	rotation. Or on a tripod		
5	Prismatic Compass	2	
	a) For measuring magnetic bearings.		
	b) 100 mm dia Fitted with quality agate stone. Provided		
	with an Aluminium floating circle graduated to read 30		
	minutes (0.5 degree). An automatic lifter along with		
	reflecting mirror is fitted on the sight vane. Packed in		
	PVC caseThe graduations to be situated on a light		
	aluminium ring fastened to the needle, and the zero of		
	the graduations coincides with the south point of the		
	needle.		
	-The graduations to run clockwise from the south end		
	of the needle (0° to 360°), - Consists of a 45° reflecting		
	prism with the eye and reading faces made slightly		
	convex so as to magnify the image of the graduations.		
6	Cross staff	10	
	Size 4", Open Type having four vanes at right angles,		
	Complete in wooden box with metallic pole.		
7	Plane Table complete set with alidade	5	
	,U-fork, Trough compass , 750mm X 600mm		
	made of seasoned fire wood fitted with brass		
	screws and brass washers provided with seasoned		
	teak		
0	Auto Loval	2	
0	Having 22x Magnification Accuracy 12mm Imaga	2	
	Fract Effective Objective Aperture (2mm Min Focus		
	0.4m Field Of View 1 deg. 20 minute Multiplication		
	Constant 100 Additive Constant 0 Compensator Pange		
	15' Compensator Setting		
	Accuracy 10.6" including Toolkit Operation Manual		
	Carrying Case Plumbob To be provided with a		
	aluminium tripod and staff		
	aluminum tripod and stari.		
9	Total Station	2	
	Reflectorless Total Station with Granhic I CD display		
	with Alpha Numeric keynad and in-built Software to		
	be provided in a carrying case with dust cover tool kit		
	and operators manual		

	TECHNICAL SPECIFICATION OF		
	REFLECTORLESS TOTAL STATION		
	$1 \text{ ANCLE MEASUDEMENT}$ A course $U_{2} \times 2$		
	I ANGLE MEASUREMENT : Accuracy HZ, V : 2		
	-6 Sec 2 DISTANCE MEASURMENT (a)		
	Prism Measuring Range : 1.3 to 6000m Method		
	Phase measurement : Invisible infrared laser (b)		
	Reflectorless Measurement Reflectorless Range		
	0.2 to 400m 4 Talasaona Magnification : 26x		
	0.5 to 400iii 4 Telescope Maginication . 20x –		
	30x Keyboard and Display : Alphanumeric		
	Keypad, Colour Graphical Data storage Internal		
	memory : $\geq 64 \text{ MB}$		
	Power Supply		
	Battery Type : rechargeable I ithium-Ion batteries		
	Working duration . Approximately more than 5 hours		
	working duration . Approximately more than 5 hours		
	Dust and water protection : To be provided		
	PROGRAMS : On Board Data Collection Software		
	ACCESSORIES : Battery charger USB Data Down		
	loading cable Wooden heavy duty tripod Prism		
	Range Pole Binod Data downloading software		
	Data Processing software : i) Should be capable for		
	bading on Dealter connectors (ii) Should be capable for		
	loading on Desktop computers (11) Should support		
	industry standard GIS S/W (iii) Should have the		
	capability of generating 3D view, automatic mapping &		
	calculation of Area and volume.		
	(Price should include Customs duty, Transportation,		
	Delivery installation and complete training of		
	Derivery, instantion and complete training of		
	equipment and software at BIET Jnanst)		
10	EDM	4	
	Having 1" least count and 2" accuracy, 30X		
	Magnification.		
	THEODOLITE Image Erect Effective Objective		
	Aperture 45mm Min Focus 1 4m Field Of View 1		
	Aperture 45mm, will. Focus 1.4m, Field Of View 1		
	deg. 30 minute, Multiplication Constant 100,		
	Additive Constant 0, Compensator Range $+3^{2}$,		
	Compensator Setting Accuracy +1" along with all		
	standard accessories:- Battery, Battery Charger,		
	Operation Manual, Tool Kit, carrying Case.		
11	Measuring Tane	10	
11	Length: 20 m. The tape is made of yern and matel	10	
	Length. 50 m, the tape is made of yarn and metal		
	wire. A metal ring is attached to the outer end of		
	tapes. The length of the tape includes the metal ring.		
	At every centimeter a black line 8 to 10 mm in		
	height is drown. Every 5 centimeters is marked with		
	an arrow in black. Every decimeter and meter is		
	marked with a back line extending over the full		
	width of the tane/ the graduation marks at another		
	wight of the tape, the graduation marks at every		

	decimeter and meter are numbered with black and red figures, respectively.		
12	Measuring Chain The chains are made in lengths of 20 and 30 meters. To enable the reading of factious of a chain, tallies (tags) are fixed at every five meter length and small brass rings are provided at every meter length. To facilitate holding of the arrows in position with the handle, a groove is cut on the outside surface of the handle. The handle joints are flexible. the tallies used for marking the distances in a metric chain are marked with letters 'Me' and 'm'.	10	
	Total		

Signature & Seal of Tenderer

Submission of the Tender:

- 1. Sealed tenders in along with earnest money amounting to the value mentioned with each item in the tender document in form of demand draft only. The tenders should reach to undersigned latest by 28 March up to 2: OO P. M.
- 2. Tenders should be submitted either in person or by post in sealed envelopes on which the name of department, item quoted; tender number and date along with name and address of the firm will be written.
- 3. Tender cost (non refundable) (ii) Earnest Money (iii) Proof of PAN and TIN registration document (iv) Standing of the firm (v) Major supplies executed in recent past (vi) Authorized dealer certificate from OEM & Commercial terms and conditions. The rates must be quoted in both figures and words. Any overwriting and/or cutting must be duly attested failing which tenders are likely to be rejected.
- 4. Tender Cost and Earnest money amounting to the value given in the tender document for each Lab should also be submitted with the tender in the form of separate Demand Drafts drawn in favour of Director, BIET, Jhansi.
- 5. Earnest money and Cost of Tender in the form of Bank Drafts must be placed in a separate sealed envelope by writing "Earnest Money" on top of the envelope.
- 6. All the envelopes as above must be kept and sealed in a big envelop. The name of items quoted, enquiry/tender no and the opening date should invariably be mentioned on the top of big envelope.
- 7. Sealed tenders should be sent to Director, Bundelkhand Institute of Engineering and Technology (BIET) Campus, Kanpur Road, Jhansi -284128 latest by 28 March at 2: 00 P.M. . The sealed tenders may be dropped in the box kept at Store and Purchase section at BIET, Jhansi.

Terms and Conditions for Submission of Tenders

- 1. Firms will have to attach the list of customers to whom they have supplied similar items in previous year along with performance reports. Total turnover of the firm must be atleast 50 Lacs per year in the last three years consecutive years. A certificate to these effects should be issued from the sales tax department.
- 2. The descriptive and illustrative literature of the quoted item in original must accompany with the tender.
- 3. Tenders received after the closing date and stipulated time shall not be considered and the institute shall not be responsible for any postal delay.
- 4. Tender should be valid atleast for a period of 04 months. (04 Months from opening date of tender).
- 5. Our terms of payments are strictly after receipt of material and check at our institute regarding the quality and working experience.
- 6. The rates should be quoted FOR store, Bundelkhand Institute of Engineering and Technology (BIET) Campus, Kanpur Road, Jhansi -284128. Inclusive of all taxes/excise duty/fright/package/forwarding expenses/insurance etc.

- 7. Firm shall be solely responsible for defective supplies and losses caused to institute on account of defective supply.
- 8. Tenders brought personally should be dropped into tender box.
- 9. Suppliers must be registered with sales tax department and they should state registration no.
- 10. Quantity of items may increase or decrease or may be cancelled upto any extent.
- 11. No sales tax form "C" or "D" etc for concessional rate shall be provided by the institute.
- 12. All tender must be accompanied by EMD as mentioned in the tender document in the form of Demand Draft drawn in favour of Director, Bundelkhand Institute of Engineering and Technology (BIET) Jhansi.
- 13. Tenders deviating from above terms and conditions shall be rejected straight way without assigning any reason thereof.
- 14. EMD will be forfeited if the equipment's are not supplied in given time.
- 15. If required, the firms have to supply the sample of the items.
- 16. If certain equipment/material needs to be checked/tested at site of the firm, all expenditure (including TA/DA) of our expert members shall be borne by the firm concerned.
- 17. Penalty : The firm, which is not able to supply the equipment's/materials mentioned in purchase order by the due date , shall be liable to pay a penalty equal to 0.10 % of the value of purchase order per day. However this can be waived of by the Director under special circumstances.
- 18. **Payment:** Ninety percent of contract price shall be paid to the supplier after the delivery / commissioning / testing and completion of the work. The remaining 10% of contract price shall be paid to the supplier within 30 days after satisfactory working.
- 19. Director has every right to extend the due date if so required but all the tenders will be opened together.
- 20. Deduction of TDS (Income Tax & VAT) as per Govt. Rules.
- 21. The firm must provide original Guarantee/Warrantee card as issued by the manufacturer, as the case may be.
- 22. The Director BIET, Jhansi may reject any or all quotations/tenders without assigning any reasons.
- 23. All disputes subject to Jhansi Jurisdiction only.

For BIET, Jhansi