Bundelkhand Institute of Engineering & Technology, Jhansi

Short Term Tender Notice No. BIET- 1/2017

The tender documents for the **Purchase of Lab Equipment / Software of Electronics & Communication Engg. Deptt.** Tender can be downloaded from the website, **www.bietjhs.ac.in** 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
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2. Tender cost (Non refundable) is **Rs. 4600/-**
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: Electronics & Communication Engineering
Particular of EMD

LAB No.	Laboratory/Repair and Maintenance Work	EMD (In Rupees)
EC-1	Microwave and optical fibre lab	64,000/-
EC-2	Microprocessor Lab	11,000/-
EC-3	CAD lab	23,000/-
EC-4	ADE lab	12,000/-
EC-5	Digital lab	12,000/-
EC-6	Communication lab	24,000/-
EC-7	PCB lab	6,000/-
EC-8	IC lab	6,000/-
EC-9	Measurement lab	4,000/-
EC-10	Control lab	6,000/-

DETAIL SPECFICATION OF MICROWAVE AND OPTICAL FIBRE LAB

SNo	Name of Equipment	Qty.	Rate (In Rupees)	Cost in Rs.
1.	'X' Band Microwave Bench Full Setup : Klystron Power Supply, Klystron tube with Klystron mounts, Frequency meter, Variable attenuator Detector mount, Wave guide stand VSWR meter, Isolator, BNC cable(04) Tunable probe, Horn Antenna Slotted line, Movable Short, Magic Tee Matched termination, Directional Coupler Parabolic Reflector	**03**		
2.	'X' Band Microwave Bench Full Setup : Gunn Power Supply, Gunn Oscillator Pin Modulator, Frequency meter Variable attenuator, Detector mount Wave guide stand, VSWR meter Isolator, BNC cable, Tunable probe Horn Antenna, Slotted line, Movable Short Magic Tee, Matched termination Directional Coupler, Parabolic Reflector	**03**		
3.	Optical Fiber Kit/Bench With Full Setup	**05**		
4.	Wireless Sensor Network Deployment Package (The system should be based on IEEE 802.15.14 with a complete set of coordinators, routers, End device, intelligent end device with real time sensors, signal conditioners etc)	**01**		
5.	Premium Light Runner(Light Runner is an integrated modular system offering over 40 experiments including EDFA, 4-channel WDM, OTDR, FBG, BER, Eye Pattern, OADM and Dispersion.)	**01**		
6.	Antenna Trainer systems for Wire antennas.	**01**		
7.	Microwave power meter	**02**		
8.	Microwave power sensor	**02**		
9.	Microwave solid state power source	**02**		
10.	Microwave connectors	**05**		
		Total		

Microprocessor Lab

S.No	Name of Equipment	Qty.	Rates In Rupees	Cost In Rs.
1.	Microprocessor kit 8085 Inbuilt Power Supply	20 Nos		
2. .	Interfacing Modules (a) 8255 (b) 8279 (c) 8253 (d) 8257 (e) Traffic Light Controller (f) ADC (g) DAC	 10 No. 10 No. 10 No. 10 No. 10 No. 10 No. 10 No.		
3.	Microcontroller Universal Burner	02 No.		
4.	Microprocessor kit 8086 Inbuilt Power supply	02 No.		
Total				

CAD LAB

S.No.	Name of Equipment	Qty.	Rates in Rupees	Cost in Rs.
1.	**Licensed Software** MULTI Sim	5 user		
2.	Xilinx 2016.1 (vivado design suite –HLX edition)	5 user		
3.	PSPICE LATEST VERSION	05 user		
Total				

Electronics Lab (ADE lab)

S.No.	Name of Equipment	Qty.	Rates in Rupees	Cost in Rs.
1.	Transistor kit for finding input and output characteristics (BJT)	6		
2.	FET kit for finding input and output characteristics	6		
3.	Determine Voltage gain, Current Input impedance and output impedance and frequency response RS coupled CE amplifier Kit	6		
4.	Kit for Half Wave, Full Wave And Bridge Rectifier	6		
5	PN junction diode & LED characteristics Kit	6		
6.	Characteristics of DIAC & TRIAC Kit	6		
7.	RC phase shift / Wien Bridge Oscillator kit	6		
8.	Digital Trainer Kit	5		
9.	operational Amplifier as summer integrator and voltage comparator kit	6		
10.	Op-Amp based astable and monostable multivibrators Kit	6		
11.	IC 555 based astable and monostable multibrators kit	6		
12.	A/D and D/A converters Kit	6		
13.	Regulation of unregulated power supply using IC 7805/7812 voltage regulator	6		
14.	Zener diode characteristics and application kit	2		
15.	Characteristics of SCR kit	2		
16.	Op-amp parameter kit	2		
17.	Single stage RC coupled amp. Kit	2		
18.	Two stage amplifier kit	2		
19.	CC and CE configuration kit	2		
20.	Push pull power amplifier kit	2		
	Total			

Digital lab I & II

S.No.	Name of Equipment	Qty.	Rates in Rupees	Cost in Rs.
1.	Digital kit for synchronous & Asynchronous Counter	06		
2.	Digital trainer kit including 4 bit adder, subtractor, Flip flop, TTL, SIPO , PISO, PIPO & SISO Shift Register kit (4 Bit)	06		
3.	CMOS inverter characteristics kit	06		
4.	4.0 Digit Hand Held Digital Multimeter	02		
5.	4.5 Digit Hand Held Digital Multimeter	02		
6.	Hand Held 1KV Insulation Tester	01		
7.	6.5 Digit Bench top digital multimeter	01		
8.	Decoder and Encoder kit	04		
9.	Mux and de-mux kit	4		
10.	4-bit Parallel adder using 7483 IC	4		
11.	Dc regulated power supply	4		
12.	Seven segment display kit	4		
13.	TTL transfer characteristics kit	4		
14.	BCD adder and Subtractor kit	4		
		TOTAL		

Communication Lab I & II

S.No.	Name of Equipment	Qty.	Rates in Rupees	Cost in Rs.
1.	Frequency modulation and Demodulation kit	4		
2.	DSB- SC & SSB-SC modulation and Demodulation kit	4		
3.	PLL 565 as frequency Demodulator Kit	4		
4.	DC power supply 5-12volts	10		
5.	Delta Modulation and Demodulation kit	5		
6.	Adaptive Delta Modulation and Demodulation kit	5		
7.	PAM, PWM,PPM Modulation and Demodulation kit	5		
8.	Superhetrodyne Transmitter and receiver kit	5		
9.	PCM Coding and Decoding	10		
10.	ASK, kit	02		
11.	FSK, kit	02		
12.	PSK kit	02		
13.	AM Modulation and demodulation by liner diode detector	02		
14.	Antenna trainer system for dipole ,yagi –uda , horn , parabolic and helical	01		
15.	FM radio receiver kit	02		
16.	Digital CRO/ 500 Mhz	04		
17.	Line coding kit	02		
18.	Phase Modulator and Demodulator Kit	02		
	Total			

PCB Lab

S.No.	Name of Equipment	Qty.	Rates In Rs.	Cost In Rs.
1.	Drill Machine	2		
2.	Shouldering and de-shouldering machine	2		
3.	Negative printing machine	1		
4.	Advanced PCB cutting tool	1		
	Total			

INTEGRATED CIRCUIT LAB

S. No.	Description	Qty	Rates in Ripees	Cost in Rupees
1	IC burner	02		
2	Analog to Digital Converter	02		
3	Multivibrator Kit Using 555 Timer	02		
4	Linear IC Trainer Kit	02		
5	Function Generator	10		
6	IC 555	1000		

7	Multimeter (Digital)	10		
8	DC Power Supply (0-12/15 V variable)	10		
9	IC 741	1000		
10	Potentiometer multirange	500		
11	Resistor (all type ¼ & 1/2 watt)	200 each		
12	Capacitor (all type)	100 each		
13	Connecting Wires and proves (crocodile & BNC – BNC)	05 coil 30 each		
14	Log and antilog amplifier kit	04		
15	Second order filter (LP,HP,BP)	04		
16	Wein bridge oscillator lit	04		
17	PLL kit	04		
18	D/A convertor Kit	04		
	V to I and I to convertor	04		
	TOTAL			

Measurement Lab

S.No.	Name of Equipment	Quantity	Rates in Rs.	Cost In Rs.
1.	Radio receiver Measurement Kit	06		
2.	Kelvin's Double Bridge Kit	06		
3.	Wheat Stone Bridge	06		
4.	Semiconductor diode voltmeter	4		
5.	LCR bridge	4		
6.	Transistor tester	4		
7.	PT-100,J-TYPE, K- TYPE and pressure transducer	2		
8.	Phase difference and frequency measuring kit using CRO	3		
	Total			

Control System Lab

Sr. No.	NAME OF EQUIPMENT	QTY.	Rates in Rs.	Cost in Rs.
1.	**Complete Setup For performing :-** *To determine response of first order and second order systems for step input for various values of constant 'K' using linear simulator unit and compare theoretical and practical results.* Simulated blocks – configurable as 1st, 2nd and 3rd order systems with negative feedback. ➢ Forward gain adjustable through a calibrated 10 turn potentiometer (Resolution 1 in 1000) ➢ Three built-in signal sources ➢ Square wave : 1 V p-p (min) ➢ Triangular wave : + 0.5 V p-p (min) ➢ Trigger pulses : + 10 V (min) ➢ Frequency adjustable : 40 Hz 90 Hz ➢ Provision for disturbance inputs at input and load ➢ I.C. regulation in all internal power supplies. ➢ Power requirement less than 10W at 220 V, 50 Hz operation ➢ Supporting literature and patch cords included. ➢ Except a CRO no other equipment is required.	02		
2.	**Complete Setup For performing :-** *To study P, PI and PID temperature controller for an oven*	02		

	and compare their performance. Temperature controller with facilities for P, I, D and relay control blocks. ➢ Operating temperature : ambient to 90^{o}C. ➢ Separate controls for P.I.D channel gains. ➢ Two settings for relay hysterisis. ➢ Fast 25 W oven fitted with IC temperature sensor. ➢ Digital display of set and measured temperature on a 3½ digit built in DVM. ➢ Buffered output for recorder ➢ IC regulation in controller circuit power supplies. ➢ 220V, 50 Hz mains operated. ➢ Supporting literature and patch cords included. ➢ No accessories are required.			
3.	**Complete Setup For performing :-** *To study and calibrate temperature using resistance temperature detector (RTD)* Using Temperature sensor : RTD PT 100 1. Range : 0 to 200 degree centigrade. 2. Mode of control : on/off. 3. Relay : O/E/N make 5 Amp rating. 4. Optional : Recorder. 5. Set up comes with digital temp. indication, set point indication, set point control and calibration check up for 0 degree and 100 degree centigrade.	**02**		

	Model size : 192 x 96 x 300 mm with powder coated M.S. box having neatly labeled anodised plate. 6. Accuracy of induction : +/- 1% of the full range. Complete set up with model process heated with comptalux bulbs. A detailed manual.			
4.	**Complete Setup For performing :-** *To design Lag, Lead and Lag-Lead compensators using Bode plot.* Simulated uncompensated system having adjustable damping peak percent overshoot Mp variable from 20% to 50% and steady state error variable from 50% to 0.5%. • Compensation network implementation through built-in variable gain amplifier. Gain is adjustable from 1 to 11. • Built-in square and sine wave generators for transient and frequency response studies. Frequency adjustable from 25Hz – 800Hz (approx.) • 220V + 10% 50 Hz mains operation.	**02**		
5.	**Complete Setup For performing :-** *To study DC position control system* 5k ohm +/- 1% linearity, Precision servo Potentiometers having bearing used as error detector. 2. Output potentiometer, similar as input potentiometer to convert output position	**02**		

	into a voltage signal. 3. Summing Amplifier with adjustable gain. 4. Armature controlled D.C. servomotor with suitable coupling required for (i) output position indicator and load. (ii) Tachogenerator. 5. D.C. tachogenerator coupled to D.C. motor, for derivative feedback. 6. Preamplifier and power amplifier to drive the D.C. motor on the basis of the error signal. D.C. motor is 12 volt, lamp, permanent, magnet a with gear train. 7. Power supply for, armature winding and electronic amplifier. Suitable test points brought on the side panel. 8. A detailed instruction manual will be supplied.			
6.	**Complete Setup For performing :-** *To study synchro-transmitter and receiver and obtain output V/S input characteristics*	**02**		
7.	**Complete Setup For performing :-** *To determine speed-torque characteristics of an ac servomotor.* 1. Two phase servomotor. 2. The speed measuring device which will not load the motor. A photoelectric pick up using disc with 20 holds and a phototransistor are used for speed sensing. Calibration source at 100 Hz is used for RPM indicator. 3. Loading arrangement for servomotor. 4. Torque measuring device. 5. A detailed manual. 6. RPM indicator and ammeter measuring load	**02**		

	current. 7. Unit will be covered by an acrylic sheet to facilitate clear view of the entire system			
8.	**Complete Setup For performing :-** *To study performance of servo voltage stabilizer at various loads using load bank.* Demonstration unit with following facilities :- (a) Variable Input AC Supply (b) AC Servo Motor (c) Servo Amplifier & Controller (d) 0-300 Voltmeter (e) Auto and Non-auto provision (f) Manual Up & Down 2. 100 Watt 250 V Lamp : Qty – 05. 3. Capacity of stabilizer 1 KVA.	**02**		
9.	**Complete Setup For performing :-** *To study behavior of separately excited dc motor in open loop and closed loop conditions at various loads.* Potentiometer as input transducer for converting reference voltage. It will be suitably marked. 2. A DC Tacho-generator/speed sensor will be also used to indicate the motor speed in RPM. 3. Summing amplifier to receive inputs, reference signal and tachgenerator output. This amplifier will have an adjustable again. 4. Separately excited DC Motor rated for 1500 RPM 1 HP at 220 volts with loading	**02**		

	arrangement. 5. Thruster converter using single phase half controlled converter to control DC motor through armature and power supply for field winding and electronic amplifier. 6. The unit will be supplied along with instruction manual. 7. The entire system will, for the range 300 RPM to 1000 RPM work as a closed loop control system. 8. Suitable protection for the electronic circuits and motor.			
10.	**Complete Setup For performing :-** *To study PID Controller for simulation proves like transportation lag.* ➢ Simulated block-dead time (transportation leg), integrator, Time constants, error detector and gain. ➢ PID Controller (configurable as P, PI, PD or PID) ➢ Proportional Band : 5% to 50% (Gain 2-20) ➢ Integral Time : 10 ms 100 ms ➢ Derivative time : 2-20 ms ➢ Built in IC regulated power supply. ➢ Built in 3½ digit DVM ➢ Built in signal sources. ➢ Set value : -1V to + 1V ➢ Square wave 1 V p-p (min) at 40 Hz (typical) ➢ Triangular wave : 1 V p-p (min) at 40 Hz (typical) ➢ Detailed literature and patch chords included ➢ 220 V, 50 Hz mains operations ➢ Essential accessory : a CRO	**02**		
	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