INDIRA GANDHI DELHI TECHNICAL UNIVERSITY FOR WOMEN
(Established by Govt. of NCT of Delhi under Act 9 of 2012)
Kashmere Gate, Delhi-110 006

LIMITED TENDER-NOTICE INVITING QUOTATION

Sealed item rate quotations are invited on behalf of Registrar, INDIRA GANDHI DELHI TECHNICAL UNIVERSITY FOR WOMEN,, Kashmere Gate, Delhi-110 006 **from eligible manufacturers /distributors /authorized dealers** for supply of Apparatus for Physics Lab as per the specification given in price bid attached with this NIQ:-

1	Name of work	Supply of following Apparatus. 1. **Fuel Cell Trainer -04 Nos.** 2. **Young's Modulus of Elasticity of materials -04Nos** 3. **To determine Frequency of A.C. Mains using Sonometer--04Nos** 4. **Diode (Silicon, Zener & LED) Characteristics Trainer--04Nos** 5. **Transistor Characteristics Trainer (CB,CC & CE mode) -04Nos** 6. **Zener diode as Voltage regulator-04Nos** 7. **Series & parallel RLC resonance Trainer-04Nos** 8. **Planck's constant set up using Photo Vacuum tube-02Nos** 9. **Hall effect Experiment setup -03Nos** 10. **e/m of electron by Magnetic focusing (Thomson Method) -03Nos** 11. **B-H curve of ferromagnetic materials using a solenoid -03Nos** 12. **Set up to study Ballistic Galvanometer-03Nos** 13. **Decade resistance Box-10Nos** 14. **Decade Inductance Box-10Nos** 15. **Decade Capacitance Box-10Nos** 16. **30 MHz dual trace Oscilloscope-05Nos** 17. **Function Generator-10Nos** 18. **USB, PC Based Oscilloscope-02Nos** 19. **DC Power Supplies-06Nos**
2	Last date, time and venue for submission of quotation	05/02/2014 up to 2.00PM
3	Date, time and venue for opening of technical bid	05/02/2014 at 2:30 PM, Seminar Hall of the University.
4	Financial bid shall be opened after evaluation of technical bid/time notified thereafter	
5	Earnest Money Deposit (EMD)	Rs 25,000/-

The bids shall be submitted in two stages viz. (i) *Technical bid* (ii) *Financial bid.*

Eligibility:-

1. *Certificate of Authorized dealership/distributor/manufacturer. (in case of manufacturer, they will self certify so. Authorized dealers/distributor shall attach attested copies of dealership/distributorship certificates issued by the manufacturer)*

2. *Undertaking by the agency in its Letterhead that:-*

a. that it has not been barred or blacklisted by any of the Central/State government/Departments/Organizations/Central or State PSU

b. that it will ensure fair trade practice.

c. that the proprietor/partners of the agency do not have any relative employed with IGDTUW University.

3. Should have valid registration with DVAT Deptt. of Govt. of Delhi

4. Should have ISO certification of the manufacturing company.

5. should have fair experience of supplying such lab equipments/appratus

4. ***Terms & Conditions:-***

*(1) The bidder shall place his bids in two separate envelops marked "Technical Bid" and "Financial bid". All documents in support of eligibility as well as another envelope containing DD/Pay order for EMD shall be placed in the envelope marked "Technical Bid". The offered rates shall be placed in the envelop marked "Financial bid". Both these bids should be superscribed with name of work and shall be placed in a third envelop which shall be superscribed "****Quotation for*** **Apparatus for Physics Lab** ***Envelop1: Technical Bid***

a. This must contain original/downloaded tender document duly signed by authorized signatory on each page.
b. Documentary proof of eligibility criteria as mentioned above.
c. Covering letter and letter of submission
d. Earnest Money Deposit in the form of DD/Pay order in favour of **"*Registrar, IGDTUW* GIA SB A/C"**

Envelop2: Financial Bid*: **Duly*** **filled and signed by authorized signatory as per attached annexure.**

(2) Bids without EMD will be summarily rejected.

(3) Conditional Bids will be summarily rejected.

(4) Bids received after due date & time shall be summarily rejected.

(5) The "Financial bid" of those bidders whose technical bids have qualified will only be opened.

(6) Rate must be quoted in Indian Rupees only net in figures & words inclusive of taxes, levies, cartage handling, loading, unloading etc.

(7) Delivery: - F.O.R. IGDTUW, Kashmere gate Delhi-110006

(8) Manufacturer should have authorized service centre in Delhi/NCR.

(9) Delivery period:- 45 days from the date of supply order.

(10) The EMD of unsuccessful bidders shall be refunded immediately.

a. (11) The successful bidder have to submit a Performance Security Deposit @ 5% of the quoted value in the form of Demand Draft/Pay order/FDR drawn in favour of **"*Registrar, IGDTUW* GIA SB A/C"***Delhi within7(seven) days of the communication accepting the bid. EMD shall be adjusted toward Performance Security Deposit. The Performance Security Deposit shall be refunded without interest after completion of the guarantee period +two months.*

(12) In case the successful bidder fails to deposit the Performance Security within the stipulated 7 (seven) days of the communication accepting the bid, the EMD shall be forfeited to IGDTUW absolutely.

(13) In case the successful bidder fails to supply the item(s) within the delivered period, a sum equal to 0.5% of the contract price per week or part thereof until the actual delivery subject to maximum of 10% of the value of supply order shall be deducted.

(14) The payment will be made after delivery and satisfactory installation of the equipment.

(15) Taxes etc., if any, leviable shall be deducted at source.

(16) *The validity of the bid will be 120 days from the date of opening of financial bids. During the validity period, the successful bidder shall not be allowed to withdraw. In case of withdrawal, the EMD. EMD shall be forfeited to IGDTUW absolutely and no claim shall be admitted in this regard. Such bidder shall not be allowed to participate in the re-quotationing process.*

(17) *The rates of successful bidder will be valid for 12 months from the date of issue of letter of acceptance.*

(18) *University reserves the right to reject any or all the bids or accept them in part or reject the lowest bid without assigning any reason.*

(19) *Unauthorized substitution or materials delivered in error of wrong description or quality or supplied in excess quantity or rejected goods shall be returned to the bidder at bidder's cost & risk.*

(20) *Warranty of equipment/Machinery should be at least 2 years from the date of supply of Equipment/machinery. Proper training of 3-4 persons for 3 to days should also be provided. The arrangement of consumables and other materials during training shall be the responsibility of vendor.*

(21) *The successful bidder shall make all arrangements towards safe and complete delivery at the designated location indicated in the supply order. Such responsibility on the part of the bidder will include taking care of insurance, freight, state level permits etc. as applicable.*

(22) *In case of any dispute relating to meaning, scope, manufacturing, operation or effect of this contract or the validity or the breach thereof, University and the contractor shall make every effort to resolve amicably by direct discussion/negotiation.*

(23) *In case the dispute cannot be settled amicably within 30 days of the raising of dispute by either party, either party may seek settlement of the dispute by arbitration in accordance with the provisions of the Arbitration & Conciliation Act, 1996 and the award made in pursuance thereof shall be binding on all the parties. The sole arbitrator shall be appointed by Vice Chancellor, IGDTUW.*

(24) *The performance under this contract shall not be stopped for any reason whatsoever during the said dispute/proceedings unless the contractor is specifically directed to do so by the univ.*

(25) *The venue of arbitration proceedings shall be Delhi/New Delhi. The language of proceedings shall be English. The law governing the substantive issues between the parties shall be the Laws of India. All disputes are subject to Jurisdiction of Delhi Courts only.*

(26) *It is also a term of the contract that if any fee payable to the arbitrator, shall be paid equally by both the parties. It is also a term of the contract that the arbitrator shall be deemed to have entered in the reference on the date he/she issues notice to both the parties calling them to submit their statement of claims and counter statement of claims.*

(27) *Force Majeure.*

For purpose of this clause, 'Force Majeure' means an event beyond the control of the contractor and not involving the contractor's fault or negligence and not foreseeable. Such events may include, but are not limited to, acts of the University either in its sovereign or contractual capacity, wars or revolutions, fires, floods, epidemics, quarantine restrictions and freight embargo.

If a Force Majeure situation arises, the contractor shall promptly notify the University in writing of such conditions and cause thereof. Unless otherwise directed by the University in writing, the contractor shall continue to perform its obligations under this contract as far as reasonably practical and shall seek all reasonable alternative means for performance not prevented by Force Majeure event.

This NIT has also been uploaded on University website

ANNEXURE-I

TECHNICAL BID FORM

(Technical Bid should be kept in separate sealed cover super scribing "Technical Bid" on it).

Name of Work: Supply of :-

1. **Fuel Cell Trainer -04 Nos.**
2. **Young's Modulus of Elasticity of materials -04Nos**
3. **To determine Frequency of A.C. Mains using Sonometer--04Nos**
4. **Diode (Silicon, Zener & LED) Characteristics Trainer--04Nos**
5. **Transistor Characteristics Trainer (CB,CC & CE mode) -04Nos**
6. **Zener diode as Voltage regulator-04Nos**
7. **Series & parallel RLC resonance Trainer-04Nos**
8. **Planck's constant set up using Photo Vacuum tube-02Nos**
9. **Hall effect Experiment setup -03Nos**
10. **e/m of electron by Magnetic focusing (Thomson Method) -03Nos**
11. **B-H curve of ferromagnetic materials using a solenoid -03Nos**
12. **Set up to study Ballistic Galvanometer-03Nos**
13. **Decade resistance Box-10Nos**
14. **Decade Inductance Box-10Nos**
15. **Decade Capacitance Box-10Nos**
16. **30 MHz dual trace Oscilloscope-05Nos**
17. **Function Generator-10Nos**
18. **USB, PC Based Oscilloscope-02Nos**
19. **DC Power Supplies-06Nos**

1. Name of the firm ……

2. Details E.M.D. 1. ----------
2. _____
3. _____

3. Letter addressing to Registrar, IGDTUW" mentioning item/Items to be quoted.
4. Technical specifications of the items duly typed and signed (please do not use copy of specifications given in tender document)
5. Catalogue/Picture of item(s)
6 .Copy of the one purchase order for each year of last three year of supply of goods of similar nature
7. Certificate of authorize dealership /authorized distributorship.
8. ISO Certificate of manufacturer
9 Under taking

a*. that it has not been barred or blacklisted by any of the Central/State government/Departments/Organizations/Central or State PSU*

b*. that it will ensure fair trade practice.*

c. *that the proprietor/partners of the agency do not have any relative employed with IGDTUW University.*

10. Copy of VAT Registration Certificate
11 copy of PAN Card
12. Annual Turnover dully supported by copy of Annual Accounts certified by the Charted Accountant of last three years.

Date:

(Name & Signature of Tenderer
with Seal of the Agency)

Annexure-II

Financial Bid

Name of work:- **Purchase of:**

1. **Fuel Cell Trainer -04 Nos.**
2. **Young's Modulus of Elasticity of materials -04Nos**
3. **To determine Frequency of A.C. Mains using Sonometer--04Nos**
4. **Diode (Silicon, Zener & LED) Characteristics Trainer--04Nos**
5. **Transistor Characteristics Trainer (CB,CC & CE mode) -04Nos**
6. **Zener diode as Voltage regulator-04Nos**
7. **Series & parallel RLC resonance Trainer-04Nos**
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17. **Function Generator-10Nos**
18. **USB, PC Based Oscilloscope-02Nos**
19. **DC Power Supplies-06Nos**

S. No	Name of the Item	Qty	Price per Pieces	Amount
1	**Fuel Cell Trainer** Complete Training System to study the Solar-Hydrogen cycle Reversible Fuel Cell- both as an Electrolyser and as a Fuel Cell Measurement and Application Modes, Weather proof Solar Panel. Specifications: Solar Panel, Voltage (at optimum power point) :2.2 V DC Current (at maximum power point) :450 mA; Dimensions : 125 x 155 x 8 (mm) Reversible Fuel Cell, Dimensions : 54 x 54 x 17 (mm) ; Electrolyzer Function Hydrogen Production Rate : 7 ml / min at 1A Oxygen Production Rate : 3.5 ml / min at 1A Fuel Cell Function: Output Voltage : 0.9 V DC ; Output Current : 360 mA	4		
2	**Young's Modulus of Elasticity of materials** A complete setup with stand, weights and different samples Samples – Aluminium, Brass, and Iron, Precise measurement by Spherometer Buzzer indicator Specifications: Length : 100 cm , Weight (6 nos.) : 500 gm Spherometer : Main scale : 10 - 0 - 10 mm ; Circular scale : 100 divisions Least Count : 0.01mm	4		

	Power Supply : 230 V +10%, 50 Hz ;Adaptor Output : 5 V, 500 mA			
3	**To determine Frequency of A.C. Mains using Sonometer** Complete setup should be mounted on a metal box.Circuit Diagram should be printed on the top of box, Sonometer should be provided with weights Height adjustment for Electromagnet, Inbuilt AC supply Weight (6 nos.) : 0.5kg (each) Power Supply : 230V ±10%, 50Hz, AC Power Supply : 6V, 500mA	4		
4	**Diode (Silicon, Zener & LED) Characteristics Trainer** Silicon Diode , Zener diode and LED should be provided on board.study the diode Forward and reverse characteristics. Inbuilt Ammeter and Voltmeter are provided. Test points are provided on board .On Board DC power supply : +12V DC Ammeter & voltmeter A Range : Multi range 1µA to 200mA 3 ½ digit LCD V Range : Multi range 1mV to 200V 3 ½ digit LCD Interconnections: 2mm gold plated Patch cords : 2 mm banana stackable & gold plated Mains : 230V AC ±10% (Detachable mains chord to be provided) Trainer should be on Legend PCB .Housed in a Moulded case with moulded cover	4		
5	**Transistor Characteristics Trainer (CB,CC & CE mode)** Characteristics of PNP, NPN transistor in all different Type of configuration and to understand various Regions of operation of PNP and NPN Transistor. CE,CB& CC config. Inbuilt Ammeter and Voltmeter. Facility to use external transistor. DC power supply : +5V, -5V+12V, -12V, Transistor : BC548, 2N3906 Ammeter Range : Multi range 1µA to 200mA : Display : 3½ digit Voltmeter Range : Multi range 1mV to 200V ;Display : 3½ digit Trainer should be on Legend PCB with no components on the top of board. Housed in a Moulded case with moulded cover .	4		
6	**Zener diode as Voltage regulator** **T**rainer should have facility to study the operation of Zener diode as a voltage regulator with the variation in source voltage and load resistance. This training board should be provided with different sections of a regulated power supply i.e. step-down transformer, bridge rectifier, capacitive filter and voltage regulator. Specifications : Transformer : 0 - 9 V, 500 mA (approx.), Filter : Capacitive ; 1000 µF, 35 V Zener Diode : V z = 5.6 V ; I ZM = 178 mA, Potentiometer, P1 :4.7KΩ ; P2 :4.7 KΩ. Trainer should be on Legend PCB with no components on the top of board. Housed in a Moulded case with moulded cover .	4		
7	**Series & parallel RLC resonance Trainer** On Board Signal Generator : Freq. Ranges : 1 KHz , 10 KHz, 60 KHz, Generator Output : 8Vpp, Onboard LCD based Voltmeter and Frequency Counter Voltmeter : 2V, Interconnections: 2mm gold plated Mains Supply : 90 - 275 V/ 50 Hz, Multiple combination of components should be provided , Observation can be made either on oscilloscope or using LCD display for voltmeter & Frequency counter provided on board. Trainer should be on Legend PCB with no components on the top of board. Housed in a Moulded case with moulded cover on top to protect from dust.	4		

8	**Planck's constant set up using Photo Vacuum tube** The set up should consist of Photo Electric cell , glass filters of different colours, variable DC power supply & Halogen lamp source. Should have facility for Precise measurement of current and voltage. DC Power Supply :0-5V variable Light Source : Halogen lamp 50W, Optical Bench : 50 cm DC Voltmeter : 3 ½ digit LCD Multi Range : 200mV- 200V DC Ammeter : 3½ digit LCD Multi Range : 2µA- 200mA Mains :230V ±10%, 50 Hz. Fuse :0.5A.	2		
9	**Hall effect Experiment setup** The set should consist of :Gauss and Tesla Meter with PC interface (RS 232/USB) ;Measurement Unit with PC interface ;Constant current power supply ;Electromagnet ;Hall probe with Oven ; Windows based Software should be provided to plot the graphs & tabular data. Specifications : Gauss and Tesla meter : Microcontroller Based Alphanumeric LCD Display for Measurement of Magnetic Field in Gauss and Tesla, With PC Interface facility. Sensor : InAs for better sensitivity ;Range : 0-5 kG, Should have facility to Indicate the direction of the magnetic field, Mains : 230 V AC ±10 %, 50 Hz 2) Measurement units. Microcontroller Based Alphanumeric 4 line LCD Display Probe Current : 20 mA (max.) ; Heater current : 0-700 mA Temperature : 0-100°C ;Mains : 230 V AC ±10%, 50 Hz PC interface : RS232/USB A) Hall probe Crystal : p-type lightly doped, Resistivity : As on probe ; Thickness : As on probe B) Temperature Sensor : PT-100 3) Constant Current Power Supply: Current range : 0 to 3.5 A ; Output Voltage : 20V Display : Microcontroller based LCD, 16 x 2 line ; Mains : 230 V AC ±10%, 50 Hz 4) Electromagnet Poles : 25 mm diameter ;Coils : 2 Nos. ;Resistance : 5 Ohms (approx)Input Current : 3.5 A at 20 V .	3		
10	**e/m of electron by Magnetic focusing (Thomson Method)** The set up should have : Microcontroller based power supply & measurement unit Cathode Ray Tube mounting on acrylic stand, Deflection magnetometer, Pair of bar magnet and Compass Box Cathode Ray Tube: Distance between Plates : d = 1.4 cm;Length of Plates :l= 3.23 cm, Distance between Screen & plates (edge): L = 14.5 cm, Focusing Voltage : Variable 0 - 300 V DC, Intensity Adjustment Voltage : Variable 0 - 60 V DC Deflection Voltage : Variable 0 - 50 V, Scale : 0 - 30 cm each side CRT connection with power supply : Octal socket, Display power supply : LCD : 16 x 2 Characters, Deflection magnetometer : 0 to 90° (Four Quadrant) Mains : 230 VAC ±10%, 50 Hz, Fuse : 500 mA	3		
11	**B-H curve of ferromagnetic materials using a solenoid** The set up should be able to measure magnetic parameters like, Corecivity , Retentivity ,Saturation magnetization, Various magnetic phase identification & Hysteresis loss of different ferromagnetic material samples. Magnetic field measurement unit. Display : 3½ digit LCD, Mains Supply : 230 ±10%/ 50 Hz Sample :Type : Nickel, Hard Steel, Soft Steel , Length : 39 mm each ;Diameter : 1.2	3		

	mm each , Diameter of pickup coil : 3.21 mm, Should be supplied with 30 MHz Dual trace Oscilloscope , microcontroller based LCD display for V/div & Time/div.			
12	**Set up to study Ballistic Galvanometer** The setup should consist of : Power Supply for Ballistic Galvanometer, Moving Coil with large Moment of Inertia. Flexible Phosphor-Bronze Ribbon Suspension Highly Sensitive Coil. Lamp and Scale Arrangement with Adjustable Stand Deflection Measurement Scale Specifications: Ballistic Galvanometer :Suspension Wire : Phosphor Bronze ; Reflector : Concave Mirror, Coil Resistance : 100Ω Lamp & Scale: Lamp : Laser Light Source ; Scale : 30-0-30cm Ballistic Galvanometer Power Supply :Supply Voltage : 6V DC Potentiometer : 5k ; Mains Supply : 90-275V, 50Hz, Fuse : 0.5A Enclosed in a plastic moulded box with moulded cover on the top to protect it from dust. No components on the top of the board only circuit/block diagram should be provided.	3		
13	**Decade resistance Box** Decade Resistance box should consist of combination of the rotary decade switches for Resistance. A wide range of Resistance Values should be selectable from the decades which allows direct read out from the position of knobs. Values to be obtained from the onboard terminal. Résistance Range: 0.1 Ω to 100 MΩ Type: Wire wound resistance. Decades: 09, Accuracy: ± 5 % ; Minimum resolution: 0.1 Ω , Wattage: 5W	10		
14	**Decade Inductance Box** Decade Inductance box should consist of combination of the rotary decade switches for Inductance . A wide range of Inductance Values should be selectable from the decades which allows direct read out from the position of knobs. Values to be obtained from the onboard terminal. Inductance Range: 1µ H to 1H ; Decades: 06, Accuracy: ± 10 % ; Minimum resolution: 1µ H	10		
15	**Decade Capacitance Box** Decade Capacitance box should consist of combination of toggle switches for selecting different values of Capacitance. A wide range of Capacitance Values should be selectable from the positions of Toggle switches .Direct readout of value of capacitance by position of toggle switches. Values to be obtained from the onboard terminal. Capacitance Range: 100 pF to 1500 µ F, Type: Disc & metal Polyester ;No. of toggle switches: 32 , Accuracy: ± 15 % ;Minimum resolution: 10pF Maximum Voltage : 63V	10		
16	**30 MHz dual trace Oscilloscope** Bandwidth : 30 MHz ; No. of Channels : 02 Digital Readout with Backlit LCD for Volts/Div & Time/division. X 10 Magnification ,20 ns max sweep speed Stable Triggering up to 40 MHz Alternate Triggering ,Sharp Trace CRT & Auto focus Power supply: 230 V ±10%/50Hz Gold Plated BNC Connectors, Accessories: BNC to Test probe, BNC to crocodile cable.	5		
17	**Function Generator** : Function: Sine, Square, Triangle ,Ramp ,Pulse ,TTL & DC	10		

	Freq. Range : 1 Hz to 10 MHz Sine , 0.3 Hz - 3 MHz (Square & Triangle) 0.3 to 2 MHz (Ramp ,Pulse & TTL) In seven steps, Variable control between steps. Pulse duty cycle : 15 % to 85 % var. (min width 200 ns) Frequency Range and Mode Selection : Microcontroller based Frequency Display : 20 X 4Alpha numeric LCD with backlit Output Voltage : 20 Vpp open circuit , Attenuation :20 & 40 dB (fixed) , 20 dB variable attenuation Offset Range : ± 5 V DC adjustable , External Frequency counter: up to 40 MHz Modulation: FM, Mod. Frequency: DC-20 KHz, 2 Vpp max. Mains Supply : 230 V ±10 %, 50 Hz, Computer interface USB.			
18	**USB, PC Based Oscilloscope** Bandwidth : 20 MHz (3dB) ; No. of Channels : 02 With all accessories	02		
19	**DC Power Supplies** Voltage 0 to 18 V, Current 0 to 5 A	06		
			Total	

Name, signature & designation of issuing authority