



**GURU GOBIND SINGH INDRAPRASTHA UNIVERSITY**  
**SECTOR 16C, DWARKA, NEW DELHI – 110078**

Phone No. 011-25302149

011-25302150

05<sup>th</sup> July, 2013

F.12.2 (1)/IPU/PUR/Computer/USICT/2012-13/

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**NOTICE INVITING QUOTATION**

Sealed item rate quotations are invited on **behalf of the Registrar, Guru Gobind Singh Indraprastha University, Sector 16C, Dwarka, New Delhi** from eligible Agencies for Supply & Installation of Equipment (Hardware) for Control System Laboratory of USICT as per details given below:

Name of Work	Supply & Installation of Equipment (Hardware) for Control System Laboratory of USICT at Guru Gobind Singh Indraprastha University at Sector 16C, Dwarka, New Delhi - 110078
Last date, time and venue for collection of quotation document	26.07.2013 (Friday) at 02:00 P.M. from the office of Dy. Registrar (Purchase), Room No. L010, Ground Floor, Library Block, GGSIP University, Sector 16C, Dwarka, New Delhi – 110078.
Last date, time and venue for submission of quotation	26.07.2013 (Friday) at 02:30 P.M. in the office of In-Charge (Purchase), Room No. L010, Ground Floor, Library Block, GGSIP University, Sector 16C, Dwarka, New Delhi – 110078.
Date and time for opening of quotation in presence of the authorized representatives of bidders, if any.	26.07.2013 (Friday) at 03:30 P.M.
Earnest Money Deposit	As indicated against each item is to be deposited in the form of DD in favour of Registrar, GGSIPU, Payable at Delhi

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 have any relative employed with GGSIP University.*
3. *Should have valid registration with DVAT Deptt. of Govt. of Delhi*

4. *That the item(s) supplied under this contract shall have on-site and comprehensive warranty for 24 months from the date of supply.*

***Terms & Conditions:-***

- (1) *The bidder shall place his bids in two separate envelopes 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 envelope marked "Financial bid". Both these bids should be superscribed with name of work and shall be placed in a third envelope which shall be superscribed "Quotation for Supply & Installation of Equipment (Hardware) for Control System Laboratory of USICT.*
- (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. GGSIP University, Sector 16 C, Dwarka, New Delhi*
- (8) *University will provide the custom duty exemption certificate.*
- (9) *Delivery period: 30 (Thirty) days from the date of supply order.*
- (10) *The EMD of unsuccessful bidders shall be refunded immediately.*
- (11) *The successful bidder have to submit a Performance Security Deposit @ 5% of the quoted value in the form of Demand Draft/Pay order drawn in favour of Registrar, GGSIPU, Delhi within 7(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 of 12 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 GGSIP University 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 shall be forfeited to GGSIP University 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) *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.*

- (21) *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.*
- (22) *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, GGS Indraprastha University.*
- (23) *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 University.*
- (24) *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.*
- (25) *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.*
- (26) *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 ([www.ipu.ac.in](http://www.ipu.ac.in))

### Schedule of Quantity

Name of items & Specifications	Qty.	Earnest Money Deposit	Unit Price	Total Amt. (incl. taxes)	Total Amt. in words
MICROPROCESSOR BASED PID CONTROLLER	01	Rs. 1,500/-			
AC SERVO MOTOR KIT	01	Rs. 1,750/-			
DC MOTOR POSITION CONTROL SYSTEM <ul style="list-style-type: none"> <li>Position control of a 12V, 1A d.c. gear motor (50 rpm)</li> <li>Provision for positive and negative tacho generator feedback Tacho constant: 2V/1000 rpm approximately</li> <li>Calibrated dials for reference and output position: resolution 1°</li> <li>Servo-potentiometers with full 360° rotation</li> <li>mP based waveform capture/display card</li> <li>Built-in 3½ digit DVM for signal measurements</li> <li>Built-in step signal and IC regulated power supplies for electronic circuits</li> <li>Separate unit for motor in a see-through cabinet</li> <li>Oscillatory response</li> <li>Underdamped response</li> <li>Motor unit</li> <li>220V±10%, 50Hz mains operation</li> <li>Literature and patch cords included</li> </ul>	01	Rs. 2,000/-			
DC MOTOR SPEED CONTROL SYSTEM <ul style="list-style-type: none"> <li>Single phase electrical supply of 240V 50Hz.</li> <li>DC generator or DC supply. (Other supply can be catered for required)</li> <li>PC Pentium Dual core for SCADA software analysis for computerized control.</li> <li>The self contained unit.</li> <li>Modern industrial components are used for operating.</li> <li>Comprehensive training manual supplied.</li> <li>Optional components are available to allow fault finding.</li> <li>Operation and diagnosis training</li> <li>Computer interface facility.</li> <li>SCADA software for graphical user interface (GUI), Digital data display, redundant bidirectional parameter</li> <li>Selection facility, real time Trend plotting historical trends, report generation (Optional)</li> </ul>	01	Rs. 1,750/-			
DIGITAL CONTROL SYSTEM (PROCESS CONTROL TRAINER) <ul style="list-style-type: none"> <li>Second order simulated process (analog process)</li> <li>Built-in D/A and A/D circuits (8-bit)</li> <li>8085 based mP kit as digital controller with user software in 8K EPROM</li> <li>16-bit arithmetic for algorithmic calculations</li> <li>16 built-in levels of P, I and D gains each. Complete flexibility for the user to develop own software</li> <li>Square wave test input (internal)</li> <li>IC regulated internal built-in power supplies</li> <li>220V±10%, 50Hz mains operation</li> <li>Detailed literature and patch cords included</li> </ul>	01	Rs. 1,750/-			
POTENTIOMETER ERROR DETECTOR KIT <ul style="list-style-type: none"> <li>Built-in signal and power sources</li> <li>3½ digit DVM for measurements</li> <li>220V±10%, 50Hz mains operation</li> <li>DC and AC operation</li> </ul>	01	Rs. 1,000/-			
PID CONTROLLER <ul style="list-style-type: none"> <li>Proportional Band: 5% to 50% (Gain 2-20)</li> <li>Integral time: 10msec - 100msec</li> </ul>	01	Rs. 2,000/-			

<ul style="list-style-type: none"> <li>Derivative time: 2-20msec</li> <li>Built-in signal sources</li> <li>Set value: -1V to +1V</li> <li>Square wave: 1V p-p (min.) at 40Hz (typical)</li> <li>Triangular wave: 1V p-p (min.) at 40Hz (typical)</li> <li>Built-in 3½ digit DVM for d.c. measurements</li> <li>Built-in IC regulated power supply</li> <li>220V±10%, 50Hz mains operation</li> <li>Detailed literature and patch chords included</li> <li>Essential accessory – a CRO</li> </ul>					
AC PHASE CONTROL SYSTEM USING SCR KIT	01	Rs. 1,000/-			
<b>PRESSURE CELL KIT</b> <ul style="list-style-type: none"> <li>Pressure Transmitter: - Input: 0-2.5 Kg/cm2/ 0-4 Kg/cm2</li> <li>Output: 4-20 mA</li> <li>Type: 2-wire Piezo-resistive type</li> <li>Mounting: Top ½” BSP connection</li> <li>Pressure Vessel: - Shape: Cylindrical,</li> <li>Material: CRCC,</li> <li>Capacity: 15 Kg/cm2, with ½”BSP connection</li> <li>Air Filter Regulator: - 0-10 Kg/cm2, with pressure gauge.</li> <li>Current Indicator: - Input: 4-20 mA, 3 ½ digit display,</li> <li>230 V AC Supply.</li> <li>Bellows Gauge : - 0-300 mm Hg</li> <li>Diaphragm Gauge :- 0-2.5 Kg/cm2/ 0-4 Kg/cm2</li> <li>Bourdon Tube Pressure Gauge: - Dial size: 4”, Range 0-4 Kg/cm2</li> <li>Bottom connection: ½” BSP.</li> <li>Air Compressor: - Tank capacity: 25 Liters, Discharge: 2 CFM</li> <li>(Optional) Motor: 2 H.P. 230 V AC Operated, Working pressure: 5-6 kg/cm2</li> </ul>	01	Rs. 1,250/-			
<b>STRAIN MEASUREMENT KIT</b> <ul style="list-style-type: none"> <li>Display: - 3 ½ digit, Seven segment Red LED Display</li> <li>Range: - 0- 2 Kg</li> <li>Accuracy: - ±0.5%</li> <li>Resolution: - 0.01,</li> <li>Least count:- 10 gm</li> <li>230 V AC 50 Hz Single Phase Supply.</li> </ul>	01	Rs. 1,250/-			
<b>REGULATED POWER SUPPLY</b> <ul style="list-style-type: none"> <li>Output Voltage &amp; Current : 0-64V 0-2A</li> <li>Metering : 3 Digit DPM.</li> <li>Meter Accuracy : ±3 counts.</li> <li>Constant Voltage Mode :</li> <li>Regulation : Line : ±0.01% ±2mV for ±10% change in line output. Load : ±0.01% ±2mV for load change from zero to full load.</li> <li>Ripple &amp; Noise : 1mV rms max.</li> <li>20Hz - 20MHz.</li> <li>Constant Current Mode :</li> <li>Regulation : Line : ±0.1% ±250µA for ±10% line change. Load : ±0.1% ±250µA for change in output voltage from 0 Volts to maximum output voltage.</li> <li>Ripple &amp; Noise : 0.04% rms.</li> <li>Mode Indication : LED indication for constant voltage / constant current operating mode.</li> <li>Output Polarity : Floating w.r.t. ground.</li> <li>Overload Protection : Automatic overload and short circuit protection.</li> <li>Transient Response : 100µsecs to within 10mV of set output voltage for load change from 10% to 90%.</li> <li>Stability : Total drift within 8 hours,after warm-up.</li> </ul>	15	Rs. 7,500/-			

<ul style="list-style-type: none"> <li>• <math>&lt; \pm 0.2\%</math> plus 5mV in constant voltage mode.</li> <li>• <math>&lt; \pm 0.5\%</math> plus 5mA in constant current mode with constant line,</li> <li>• load and ambient temperature conditions.</li> <li>• Operating Temperature : 0-50Degree Celcius.</li> <li>• Overvoltage Protection : Provided on 5V rail in LQ6324.</li> <li>• Line Voltage : 230V AC <math>\pm 10\%</math> 50Hz,single phase.</li> </ul>					
<b>DC POWER SUPPLY</b> <ul style="list-style-type: none"> <li>• Output Voltage &amp; Current : 15-300V/ 3.00A</li> <li>• Metering : 3 digit DPM to indicate voltage &amp; current</li> <li>• Regulation : Line : <math>\pm 0.1\%</math>. Load : <math>\pm 0.1\%</math>.</li> <li>• Ripple &amp; Noise : 0.05% rms.</li> <li>• Operating Temperature : 0-50OC.</li> <li>• Line Voltage : 230V AC <math>\pm 10\%</math>, 50Hz single phase.</li> <li>• Output protected against Short Circuit.</li> </ul>	02	Rs. 1,000/-			
<b>DIGITAL TACHOMETER</b>	02	Rs. 300/-			
<b>UNIVARSAL FREQUENCY COUNTER</b> <ul style="list-style-type: none"> <li>• Frequency Range : Input A : 0.2Hz to 110MHz. Input B : 50MHz to 1300MHz.</li> <li>• Gate Time : 10mSec, 100mSec, 1Sec, 10Sec selectable.</li> <li>• Resolution : 100n Hz to 10KHz.</li> <li>• Accuracy : <math>\pm 1</math> count <math>\pm</math>time base accuracy.</li> <li>• Sensitivity : Input A : 0.2Hz to 50MHz - 30mVrms 50MHz to 100MHz - 50mVrms 100MHz to 110MHz - 100mVrms Input B : 50MHz to 1.1GHz - 30mVrms 1.1GHz to 1.3GHz - 60mVrms</li> <li>• Input Impedance : Input A : 1M ohm // 25pF nominal. Input B : 50 ohms nominal.</li> <li>• Max. Input Voltage : Input A : DC to 5KHz : 300V (DC + AC pk). 5KHz to 110MHz : Input B : DC - 50V. AC - 3V rms.</li> <li>• Attenuator: x1 &amp; x10.</li> <li>• Period Measurement Range : Input A: 10 nsec to 5 sec.</li> <li>• Annunciators : LED indication for overflow, Gate time (0.01, 0.1, 1, 10 in sec.),Display Hold, Freq. offset mode,Measurement mode (Freq. A conventional &amp; normal, Freq. B,period A, ns, <math>\mu</math>s, ms, sec., MHz,KHz &amp; Hz).</li> <li>• Display : 0.56", 8 digit LED display.</li> <li>• Display Time : 0.8 Sec to 5 Sec. &amp; Display hold.</li> <li>• Time Base Internal (For 1122X)</li> <li>• Time Base Freq. : 10MHz oven controlled.</li> <li>• Stability Over Temp. : <math>&lt; \pm 1 \times 10^{-7}</math>.</li> <li>• Range (0 to 50OC)</li> <li>• Short term stability : <math>&lt; 5 \times 10^{-8}</math> / s.</li> <li>• Long term stability : <math>&lt; 5 \times 10^{-7}</math> / day.</li> <li>• Warm-up Time : 15 minutes.</li> <li>• Time Base Internal (For 1122)</li> <li>• Time Base Freq. : 10MHz.</li> <li>• Ageing Rate : <math>\pm 5</math> PPM / year.</li> <li>• Stability : <math>\pm 1</math> PPM.</li> <li>• Temp. Stability : <math>\pm 5</math> PPM from 0 to 50OC.</li> <li>• Internal Out : 5V p-p.</li> <li>• Time Base External</li> </ul>	02	Rs. 2,500/-			

<ul style="list-style-type: none"> <li>Time Base Freq. : 10MHz .</li> <li>Sensitivity : 2V p-p (min.), 5V p-p (max.).</li> <li>General</li> <li>Interface : RS232 (Optional).</li> <li>Power : 230V AC <math>\pm 10\%</math>, 50Hz &amp; EXT</li> <li>BATT. operation.</li> <li>Standard : 1. BNC(M) to BNC(M)</li> </ul>					
<p>DUAL TRACE CRO WITH STORAGE</p> <ul style="list-style-type: none"> <li>Input coupling DC, AC, GND</li> <li>Input impedance <math>1M\Omega \pm 2\%</math> in parallel with <math>20 \pm 3pF</math></li> <li>Probe attenuation factor 1X, 10X, 100X, 1000X</li> <li>Maximum input voltage 400V (DC + AC Peak, <math>1M\Omega</math> input impedance)</li> <li>Time delay between channels (Typical) 150ps</li> <li>Waveform interpolation Sin (x) / x</li> <li>Saving depth 25K for single channel; 12.5K for dual channels</li> <li>Scanning range (s/div) 2ns/div-50s/div (UQ2102CEL, at 1-2-5 increment);</li> <li>5ns/div-50s/div (UQ2052CL, at 1-2-5 increment).</li> <li>Accuracy of sampling rate and delay time <math>\pm 50ppm</math> (any time interval <math>\geq 1ms</math>)</li> <li>Time interval (<math>\Delta T</math>)</li> <li>Measurement accuracy (full bandwidth)</li> <li>Single : <math>\pm (1 \text{ sampling time interval} + 50ppm \times \text{reading} + 0.6ns)</math>;</li> <li>&gt; 16 average values : <math>\pm (1 \text{ sampling time interval} + 100ppm \times \text{reading} + 0.4ns)</math></li> </ul>	15	Rs. 75,000/-			

**[Dr. Abha Vermani]**  
**In-Charge [Purchase]**