

# Gautam Buddha University

(Established by the Uttar Pradesh Gautam Buddha University Act 2002  
UP Act No. 9 of 2002, passed by the Uttar Pradesh Legislature)

Greater Noida – 201 312, Ph. 0120-2344200

Website : [www.gbu.ac.in](http://www.gbu.ac.in)

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## BID FORM

SUPPLY & INSTALLATION OF EQUIPMENT FOR CONTROL SYSTEM  
LAB., SCHOOL OF ENGINEERING

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<b>Tender</b>	<b>SUPPLY &amp; INSTALLATION OF EQUIPMENT FOR CONTROL SYSTEM LAB., SCHOOL OF ENGINEERING</b>
<b>Opening Date of Bid</b>	16.02.2024
<b>Last date &amp; Time of Bid Submission</b>	07.03.2024 upto 3.30 p.m.
<b>Technical Bid Opening Date, Time &amp; Place</b>	07.03.2024 at 04.30 p.m.  Venue : Conference Room of the Registrar Office, 1 <sup>st</sup> Floor, Administrative Building, G.B.U., Gr. Noida.  (Bidder/authorized representative of bidders may attend the bid opening proceedings on the above mentioned day and time).
<b>Estimated Cost</b>	Rs.3,79,134.00 (Rupees Three Lakh Seventy Nine Thousand One Hundred Thirty Four Only – incl. of GST)
<b>Time of Completion</b>	Two months
<b>Earnest Money Deposit Tender Fee</b>	Rs.4,500.00 (Rupees Four Thousand Five Hundred only)- (Refundable)  Rs. 1,000.00 + @18% GST = Rs.1,180/- (One Thousand One Hundred Eighty only – incl. of GST) - (Non-refundable)
<b>Bid System</b>	Two Tier : 1) Technical Bid 2) Financial Bid
<b>Bank Account Detail for submission of Tender Fee and Earnest Money Deposit (through NEFT/RTGS only)</b>	Punjab National Bank, Gautam Buddha University, Greater Noida (U.P.) A/C No. 6660000100000681, IFSC Code: : PUNB0666000

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## CHECK LIST

(Please mark number on each page submitted for the support of bid)

Total BID Pages : .....

Sr. No.	Document Name	Page No.
1	Tender fee through NEFT/RTGS only in prescribed account of Gautam Buddha University of <b>Amount Rs.1000.00 + @18% GST= Rs.1,180/- (Rupees One Thousand One Hundred Eighty Only-incl. of GST)</b> as per terms and conditions enclosed scan copy.	
2	Earnest Money through NEFT/RTGS only in prescribed account of Gautam Buddha University of <b>Amount Rs.4,500.00 (Rupees Four Thousand Five Hundred Fifty only)</b> as per terms and conditions enclosed scan copy.	
3	Filled up bidder's Performa ( <b>i.e. page no. 3,4 &amp; 5</b> ) appended with the tender	
4	Detail of the similar type of items supplied / installed / maintained during three years out of last four financial years at IITs, NIT's or Central / State Universities / Organization / Any Academic Institute of National Repute / Reputed Private Organizations etc. Three purchase order/supply order out of last four financial years)	
5	Audited balance sheet counter signed by C.A. for three years out of last four financial years clearly indicating turnover and T.D.S. along with Form 3CB and 3CD. Average turnover should be at least 30% of the estimated cost during the last three financial years out of last four financial years.	
6	Attached PAN, OEM/Authorization Certificate & GST/IGST Registration Copy	
7	The vendor shall submit an affidavit (duly notarized) on Rs.10/- stamp paper as per below format only ( <b><i>the affidavit issues date/notarize date should not be earlier than the tender advertisement date</i></b> ): <b><i>"I/We hereby confirm and declare that M/s. .... proprietor/partner(s) is/are not blacklisted/de-registered/debarred by any Government department/Public Sector Undertaking, Universities, Institution and College or any other reputed organization for which we have executed/undertaken the works/services during the last four financial years"</i></b>	

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## “BIDDER’S PROFORMA”

Name of the Organization			
Pl. mentioned whether a Government Company / Public Ltd. / Private Ltd. / Partnership / Proprietorship			
Specify the number of years in this line of activity by the company			
PAN registration Number			
GST / IGST registration Number			
Provide the postal address, telephone & fax numbers, and email address of the nearest office			
Are you the manufacturer / authorized dealer / distributor/ retailer for the product quoted (please attached relevant certificate):			
Whether technical specification are attached with Technical Bid or not.			
Deviations in specifications, if yes, please mention in separate sheet.			
Audited balance sheet counter signed by C.A. for three years out of last four financial years clearly indicating turnover and T.D.S. along with Form 3CB and 3CD. If the figures for 2022-23 are not available then they may furnish financial statement of year 2019-20. Average financial turnover should be at least 30% of the estimated cost during the last three consecutive financial years out of four financial years.	<b>2020-21</b>	<b>2021-22</b>	<b>2022-23</b>

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Detail of the similar type of items supplied / installed / maintained during three years out of last four financial years at IITs, NIT's or Central / State Universities / Organization / any Academic Institute of National Repute / Reputed private organizations etc.

**(enclose three purchase order/supply order out of last four financial years)**

Nature of work & name of organization	Amount of work done (lakh Rs.)	Contract Period	Name & Contact No. of the client
Whether your firm has been blacklisted by any Government Organization including Universities, Institutions and Colleges during last four financial years.			<b>(Yes / No)</b>

## DECLARATION

I/We hereby declare that the information given in the technical bid by the undersigned is correct and fulfill all conditions as published in the tender document.

## ACCEPTANCE

I/We accept the above terms and conditions and shall comply with them strictly.

(SIGNATURE OF THE BIDDER)

WITH SEAL

NAME: .....

ADDRESS : .....

Tel./Mobile No.: ..... Email ID : .....

## **BANK DETAILS OF VENDORS, in case of refund of EMD**

Bank A/c Name : .....

Bank Name : .....

Bank Account No. : .....IFSC Code : .....

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## GENERAL TERMS AND CONDITIONS

1. Detailed information about the items, specifications are available in tender document which can be downloaded from the University website [www.gbu.ac.in](http://www.gbu.ac.in).
2. Offer should be submitted in two parts, in two separate envelopes; 1) **Technical Bid** and 2) **Financial Bid**. These two envelopes shall be sealed in a common cover and addressed/sent to “**The Registrar, Gautam Buddha University, Greater Noida, Gautam Budh Nagar -201312 (U.P.)**” super scribing “**Tender against Tender Advt. GBU/S&P/01/2024 dated 15.02.2024, Name of work : Supply & Installation of Equipment for Control System Lab., SCHOOL OF ENGINEERING**” so as to reach us on or before last day of submission.
3. The Technical Bid and Financial Bid should be duly filled up.
4. The technical bid of the bidders will be opened first and the financial bid will be opened only of technically qualified.
5. List of Documents to be submitted by tenderer to qualify the Eligibility Criteria :

### A. TECHNICAL BID

- i. The tenderer shall have to pay tender document fee of **Rs. 1,000.00 + @18% GST = Rs.1,180/- (Rupees One Thousand One Hundred Eighty only – incl. of GST)** through NEFT/RTGS only payable in favour of Gautam Buddha University in the A/C No 6660000100000681, IFSC Code: PUNB0666000, Punjab National Bank, Gautam Buddha University, Greater Noida. The copy of NEFT/RTGS with transaction ID must be enclosed along with the bid. This tender document fee will be non-refundable. Bid without tender fee in the prescribe form will not be accepted.
- ii. The tenderer shall have to furnish, as part of its bid, a bid security/EMD of **Rs. 4,500.00 (Rupees Four Thousand Five Hundred only)** through NEFT/RTGS only in favour of Gautam Buddha University in the A/C No. 6660000100000681, IFSC Code: : PUNB0666000, Punjab National Bank, Gautam Buddha University, Greater Noida. The copy of NEFT/RTGS with transaction ID must be enclosed along with the bid.
- iii. Filled up bidder’s proforma (page no. 3, 4, 5 & 6) appended with the tender.
- iv. Purchase Order of works satisfactorily completed for three years out of the last four financial years at IITs, NIT’s or Central / State Universities / Organization. Any Academic Institute of National Repute / Reputed private organizations etc.
- v. Audited balance sheet counter signed by C.A. for three years out of last four financial years clearly indicating turnover and T.D.S. along with Form 3CB and 3CD. The cumulative turnover during last three consecutive years should be 30% of the estimated value.
- vi. OEM/Authorized Firm Authorization Certificate.
- vii. PAN Certificate of the individual/Company/Firm.
- viii. The tenderer should submit the G.S.T. /I.G.S.T registration certificate.
- ix. The vendor shall submit an affidavit (duly notarized) on Rs.10/- stamp paper to the effect that the firm has never been blacklisted by any Government organization including

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Universities, Institutions and Colleges, as per below format (*the affidavit issues date/notarize date should not be earlier than the tender advertisement date*):

*“I/We hereby confirm and declare that M/s. ....  
proprietor/partner(s) is/are not blacklisted/de-registered/debarred by any  
Government department/Public Sector Undertaking, Universities, Institution and  
College or any other reputed organization for which we have executed/undertaken  
the works/services during the last four financial years”*

## **B. PRICE BID**

- i. Price bid duly filled in all respects in tender. The price shall be in words and numeric numbers both.
6. Offer should be sent in a sealed envelope, submitted either in person or by post on which name and address of the supplier/firm shall be written. Tenders received through E-mails or FAX will not be considered.
7. The rate quoted should be F.O.R. Gautam Buddha University (Gautam Buddha Nagar, Greater Noida, UP) in rupees inclusive of all charges e.g. packing, forwarding local taxes, railway freight, transit insurance etc. The total price should include all accessories required for final installation of the item. **Rates of imported goods should be quoted excluding custom duty, as this University is exempted from payment of custom duty (by letter of Department of Scientific and Industrial Research, Ministry of Science & Technology, GOI).**
8. The technical bids will be opened on scheduled date and time in the presence of the bidders/authorized representatives of bidders. Suppliers intending to attend the tender opening should intimate in advance.
9. The EMD of the successful bidder will be refunded after getting the “Performance Security Deposit (i.e. 10% of PO/WO value)”. The Performance Security Deposit shall be deposited in the form of FDR/Bank Guaranty only, pledged in favour of “Gautam Buddha University” and should be valid for whole contract/warranty period. The PSD will be returned only after expiry of the successful contract/warranty period. The EMD of the unsuccessful bidders will be returned to the firm(s) immediately after finalization of the tenders. No interest will be paid on EMD in any case.
10. Detailed specifications with the mention of make and model/Version of each item should be clearly given supported by the illustrated pamphlets wherever possible. Quotations without specified make and Model/Version and other particulars may be rejected. The accessories included in the Equipments/Instruments should also be clearly mentioned.
11. Losses or damage in transit will be borne by the Supplier. The supplier may, if he so desires, get the goods insured and include such charges in the tendered rate.
12. Offered prices should be valid for at least 180 days from the last date of receipt of tenders.
13. a) The items delivery time should be preferably within stipulated period mentioned in purchase order, if fails  
b) The Penalty Clause is as under:-

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Should the bidder fail to deliver the goods within stipulated period, the Competent Authority may, at his discretion, allow an extension in time subject to recovery from the bidder as agreed liquidated damages, and not by way of penalty, a sum equal to the percentage of the value of tender amount which the bidder has failed to supply for period of delay as stated below:-

- |  |  |
|--|--|
| i. Delay up to one week                                    | 1%   |
| ii. Delay exceeding one week but not exceeding two weeks   | 2%   |
| iii. Delay exceeding two weeks but not exceeding one month | 5%   |
| iv. Delay exceeding one month                              | 5% for each month and part there of subject to maximum 10% |

c) In case of failure to supply the goods within stipulated delivery period and in accordance with the specifications given in the quotations, the University shall be free to cancel the order.

13. Supply of the placed order in part will not be accepted.
14. No advance payment shall be released in any case. The payment shall be released on delivery of items in good condition, installation and putting those in satisfactory working conditions only.
15. No increase in price will be allowed after our purchase order(s) are placed.
16. Warranty certificate against all the Items/Equipment/Instruments developed defects covering warranty period, which commences from the date of installation shall be given at the time of supply of the items.
17. During the warranty period whenever the firm is called upon to attend to the rectification of the defects/faults in the consignments, the firm shall attend to the repair work within a period of a week. They should render timely back up service whenever called upon. A certificate to the effect should be attached to the tender.
18. A certificate to the effect that items supplied is fully operational and no additional accessory or space is required to fully functioning the Equipments/Instruments should be issued along with the delivery challans/invoice. GBU reserves the right to refuse payment in the event of not furnishing this certificate at the time of supply.
19. Complete user, technical and service manuals/installation drawings/documentation and spare parts catalogue are to be provided along with the supply of the item.
20. Failure to comply with all the terms and conditions mentioned herein would result in the tender being summarily rejected.
21. Conditional tenders will not be accepted.
22. GBU reserves the right to change the order quantity or split the orders among multiple vendors



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without assigning any reason (s) whatsoever.

23. GBU reserves the right to reject any or all the tenders without assigning any reasons whatsoever.
24. All legal proceedings, if necessity arises to the University may be any of the parties (University or Contractor/Supplier) shall have to be lodged in the courts situated at Distt. Gautam Budh Nagar and not elsewhere.

**REGISTRAR**

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## TECHNICAL SPECIFICATION

S.No.	Equipment Description	Scope of learning
1.	<p><b>D.C. POSITION CONTROL TRAINER</b></p> <p><b>Technical Specifications</b></p> <ul style="list-style-type: none"><li>• Square Wave Generator : 50 Hz</li><li>• Test Points : 4 nos</li><li>• Weight for unit 1 : 1kg (approx.)</li><li>• Dimension for unit 2 (mm): L 165X B140X H145</li><li>• Weight for unit 2 : 800gms (approx.)</li><li>• Dimensions (mm) : W 326 x D 252 x H 52</li><li>• Power Supply : 100V - 240V AC, 50/60Hz</li><li>• Operating Conditions : 0-40 C, 85% RH</li><li>• Included Accessories: Cabinet for Motor Assembly-1no. Cable for interfacing between cabinet and laptop -1no.</li><li>• Product manual, patch chords</li></ul> <p><b>Features</b></p> <ul style="list-style-type: none"><li>• Position control of a geared DC motor</li><li>• Calibrated dials for reference and output position</li><li>• Servo Potentiometers with full 360°</li><li>• Separate unit for a motor with 2 sided acrylic body</li><li>• Square Wave Generator</li><li>• Precise Signal Conditioning</li><li>• Sensitive, linear, stable and accurate</li><li>• Easy to operate</li></ul>	<p>To observe the:</p> <ul style="list-style-type: none"><li>• Position control system for different values of angular position commands</li><li>• Position control system for different values of the forward gain at different values of angular position commands</li><li>• Controller output of the system for different values of the forward gain</li></ul>
2.	<p><b>A. C. POSITION CONTROL TRAINER</b></p> <ul style="list-style-type: none"><li>• 2-Phase servomotor-12 volt/phase, 50Hz, 10watt</li><li>• Power amplifier for driving</li><li>• Servo potentiometer type error detector</li><li>• In-built 10.00 volt (RMS) panel meter</li><li>• Step response capture/display card</li><li>• Detailed literature with typical results included</li><li>• Complete unit except a measuring CRO</li><li>• 220 volts, 50Hz mains operation</li><li>• Product manual, Patch chords</li></ul>	<p>To observe the:</p> <ul style="list-style-type: none"><li>• Error detector characteristics, phase reversal</li><li>• Amplifier gain measurement</li><li>• Phase difference between control and reference windings</li><li>• Step response study</li></ul>
3.	<p><b>STEPPER MOTOR CONTROL TRAINER</b></p> <p><b>Technical Specifications</b></p> <ul style="list-style-type: none"><li>• Stepper Motor Motor Type : Unipolar</li><li>• Torque : 6 Kg-cm</li><li>• Phase Current: 0.8 Amp.</li><li>• Stepping Angle : 1.8 /0.9</li><li>• Operating Voltage : 12 V DC</li><li>• Input Pulse : 5V TTL Compatible</li><li>• Test Points : 20</li><li>• Cabinet for Motor</li><li>• Dimension : L165 X B140 X H145</li><li>• Weight : 500gms (approximately)</li></ul>	<p>To observe the:</p> <ul style="list-style-type: none"><li>• Study and use of Stepper Motor in Wobble Mode.</li><li>• Study of Stepper Motor in Full Step, Single Phase, Free Running Mode.</li><li>• Study of Stepper Motor in</li></ul>

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	<ul style="list-style-type: none"> <li>• Power Supply : 110 / 230V <math>\pm</math> 10%, 50/60Hz</li> <li>• Dimension (mm) : W326 X D252 X H52</li> <li>• Operating Conditions: 0-40 C, 80% RH</li> <li>• Weight : 1.5 Kgs. (approximately) including Motor</li> <li>• Included Accessories : Mains cord, DB 9 Serial Cable Cabinet for motor assembly 1no.(each)</li> <li>• Product manual, patch chords</li> </ul> <p><b>Features</b></p> <ul style="list-style-type: none"> <li>• Different modes of operation</li> <li>• Half and Full step angle</li> <li>• Visual indication of the coil excitation</li> <li>• External connector for programming with different controllers</li> <li>• Separate unit for Motor in a see through cabinet.</li> <li>• Easy to operate</li> </ul>	<p>Full Step, Single Phase, Step Running Mode.</p> <ul style="list-style-type: none"> <li>• Study of Stepper Motor in Full Step, Two Phase, Free Running Mode.</li> <li>• Study of Stepper Motor in Full Step, Two Phase, Step Running Mode.</li> <li>• Study of Stepper Motor in Half Step, Free Running Mode.</li> <li>• Study of Stepper Motor in Half Step, Step Running Mode</li> </ul>
4.	<p><b>D.C. SPEED CONTROL TRAINER</b></p> <p>Technical Specifications</p> <ul style="list-style-type: none"> <li>• DC Motor : 12V</li> <li>• DC Speed sensing : IR Sensor</li> <li>• Digital Voltmeter : <math>\pm</math>10V</li> <li>• Electronic Tacho Generator: 0-2400 RPM</li> <li>• Square wave generator : 500 Hz</li> <li>• Test Points : 6 nos.</li> <li>• Power Supply : 110 / 230V <math>\pm</math> 10%, 50/60Hz</li> <li>• Dimension (mm) : W326 X D252 X H52</li> <li>• Operating Conditions : 0-40 C, 80% RH</li> <li>• Weight : 1.5 Kgs. (approximately)</li> <li>• Motor Cabinet Dimension : W230 X D130 X H130</li> <li>• Weight : 1.6Kg (approximately)</li> <li>• Included Accessories : Mains cord, Cabinet for Motor assembly, Connecting cable - 1no, Path cord 8"-2nos</li> <li>• Product Manual, Patch chords</li> </ul> <p><b>Features</b></p> <ul style="list-style-type: none"> <li>• Closed loop motor speed control with eddy current brake</li> <li>• System contains PID Controller for controlling the speed of DC Motor</li> <li>• Slotted disk for speed measurement</li> <li>• Separate unit for Motor in a see through cabinet</li> <li>• LCD for speed and voltage display</li> <li>• Square wave generator</li> </ul>	<p>Study of:</p> <ul style="list-style-type: none"> <li>• Effect of loading on the speed of the Motor in the open loop (Eddy Current Brake)</li> <li>• Effect of loading on the speed of the Motor in the closed loop</li> <li>• Speed control of a DC Motor</li> <li>• Speed control of a DC Motor using variable gain error amplifier</li> <li>• Steady state error variation with forward gain</li> <li>• Characteristics of tachometer with PC interface</li> <li>• Speed control of a DC Motor using variable</li> </ul>

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	<ul style="list-style-type: none"> <li>• Precise signal conditioning</li> <li>• Sensitive, linear, stable and accurate</li> </ul>	gain error amplifier using PC interface
5.	<p><b>LEVEL MEASUREMENT &amp; CONTROL TRAINER KIT</b> <b>Technical Specifications</b></p> <ul style="list-style-type: none"> <li>• Level Transducer (Capacitor type) with cable and connector to connect with the unit.</li> <li>• Measuring Jar (Plastic) with mm marking scale and stop cork and water pump.</li> <li>• Built-in 3 ½ digit DPM for level measurement.</li> <li>• ON-OFF control action with two set points; one for high level and other for low level.</li> <li>• Set point adjustable through potentiometer.</li> <li>• Set point value can be seen on display.</li> <li>• PID control</li> <li>• Relay output to control the motor pump.</li> <li>• Built-in Regulated Power Supply.</li> <li>• 230V ±10%, 50Hz, mains operation.</li> <li>• Supporting literature and patch chords.</li> <li>• Product Manual</li> </ul>	<p>To observe the:</p> <ul style="list-style-type: none"> <li>• To Control the level of water at desired level.</li> <li>• To control the opening and closing of valve</li> <li>• To control the motor pump using PID control</li> </ul>
6.	<p><b>LIGHT INTENSITY CONTROL</b></p> <ul style="list-style-type: none"> <li>• Built-in 3½ digit DVM</li> <li>• Built-in IC regulated power supplies</li> <li>• 220V±10%, 50Hz Mains operation</li> <li>• Detailed literature and patch cords included</li> <li>• Seven lamps 6V/300mA</li> <li>• Switch selectable PI-Controller</li> <li>• Product Manual</li> </ul>	<p>To observe the:</p> <ul style="list-style-type: none"> <li>• Characterization of light panel and light sensor blocks</li> <li>• Study of a practical single loop feedback Control system which includes: <ul style="list-style-type: none"> <li>a. Disturbance study</li> <li>b. Error monitoring</li> </ul> </li> <li>• Performance improvement through P-I control</li> <li>• Evaluation of dynamic behaviour</li> <li>• 5Hz square wave and triangular wave for dynamic response study</li> </ul>
7.	<p><b>PLC Controlled Electro Pneumatic Training Platform</b> <b>PLC Operated</b> <b>Technical Specifications PLC</b></p> <ul style="list-style-type: none"> <li>• Digital Input : 12</li> <li>• Digital Output : 8</li> <li>• Program size (Words) : 2048</li> <li>• Toggle Switches : 8</li> <li>• LED's : 8</li> </ul>	<p>To observe the:</p> <ul style="list-style-type: none"> <li>• Study and use of Ladder programming</li> <li>• Study and use of Normally Open bit (NO) and Normally Close bit (NC) instruction by PLC</li> </ul>

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	<ul style="list-style-type: none"> <li>• Buzzer : 1</li> <li>• Boolean execution speed : 0.33 µs/Sequential instruction in average</li> <li>Interfacing : RS232,</li> <li>• No. of ports : 1</li> <li>• Input Voltage : 24 V DC</li> <li>• Output Voltage : 24 V DC</li> <li>• Power Supply : 110V - 260V AC, 50/60Hz</li> </ul> <p><b>Pneumatic components</b></p> <ul style="list-style-type: none"> <li>• Double acting cylinder : 2 Single acting cylinder : 1</li> <li>• 5/2 Hand lever valve : 1</li> <li>• Manifold : 1</li> <li>• FRL : 1</li> <li>• Flow control Valve : 2</li> <li>• 5/2 Solenoid Valve : 2</li> <li>• 3/2 Solenoid Valve : 1</li> <li>• Proximity Sensor : 1</li> <li>• Limit Switch : 1</li> <li>• Dimensions (mm) : W 760 x D 310 x H 550</li> <li>• Weight : 8 Kg. (approximately)</li> <li>• Included Accessories : Interfacing cable &amp; Mains cord:1 PU tube-7 meter, Tee Connector-2nos,Tube cutter-1no,</li> </ul> <p><b>Included Component detail Specifications :</b></p> <ul style="list-style-type: none"> <li>• Double Acting Cylinder : Stroke length : 100 mm Operating Pressure range : 0.5-8 kg/cm<sup>2</sup>; Diameter : 32 mm</li> <li>• Single Acting Cylinder : Stroke length : 75 mm Operating Pressure range : 0.5-8kg/cm<sup>2</sup> Diameter : 32 mm Port size : 1/8 inch</li> <li>• Solenoid Valve: Type : 5/2 (2 position,5 port) Pressure Range : 1.5–8 Kg /cm<sup>2</sup> ; Operating Voltage : +24V DC</li> <li>• 3/2 Solenoid Valve Type : 3/2 (2 position, 3 port) Pressure range : 1.5–8 Kg /cm<sup>2</sup> ; Operating Voltage : +24V DC</li> <li>• Hand lever Valve Type : 5/2 (2 position , 5 port) , Pressure range : 1.5–8 Kg /cm<sup>2</sup></li> </ul>	<ul style="list-style-type: none"> <li>• Study and use of memory bit</li> <li>• Study and use of Set Reset instruction</li> <li>• Study and use of Timer instruction</li> <li>• Study and use of Cumulative Timer instruction</li> <li>• Study and use of Special Memory bits</li> <li>• Study and use of Counter instruction</li> <li>• Study and use of UDCTR instruction</li> <li>• Study and use of PWM instruction</li> <li>• Study and use of Compare instruction</li> <li>• Study and use of arithmetic function (addition)</li> <li>• Study and use of Trigonometric (Sin instruction )</li> <li>• Study and use of Move instruction</li> <li>• Study and use of Conversion (BCD to Binary instruction )</li> <li>• Study and use of master control loop</li> <li>• Study and use of skip control loop</li> <li>• Study and use of Jump &amp; Label instruction</li> <li>• Study and use of Subroutine</li> <li>• Study and implementation of NOT gate using PLC</li> <li>• Study and implementation of AND gate using PLC</li> <li>• Study and implementation of OR gate using PLC</li> <li>• Study and implementation of NAND gate using PLC</li> <li>• Study and implementation of NOR gate using PLC</li> <li>• Study and implementation of XOR gate using PLC</li> <li>• Study and implementation of</li> </ul>
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<p><b>Manifold :</b></p> <ul style="list-style-type: none"><li>• no. of ports : 04</li><li>• Flow Control Valve Operating Pressure range : 1.5 - 8kg /cm<sup>2</sup></li><li>• Pressure Gauge : Pressure range : Reads (0-150 psi and 0-10kg/cm<sup>2</sup>)</li><li>• FRL(Filter, Regulator and Lubricator) :</li><li>• Operating Pressure : 115 psi, Filter : Filter size : 25 micron</li><li>• Regulator : Applicable Pressure range:0.05 ~ 0.85 Mpa</li><li>• Lubricator : Working Pressure : 0.05 ~ 0.8 Mpa</li><li>• Proximity Sensor (Inductive): Input Voltage : +24V DC</li><li>• Limit Switch: Roller lever type</li><li>• Air Compressor : Pressure range : 0 to 150 psi and 0 to 10kg/cm<sup>2</sup></li><li>• Supply : 230V AC</li><li>• Motor Type : Single Phase ; Motor Power : 0.5HP</li><li>• Tank Capacity : 5L</li><li>• Product manual , Patch Chords</li></ul> <p><b>Product Features</b></p> <ul style="list-style-type: none"><li>• PLC operated Electro Pneumatic platform</li><li>• 12 Digital Input, 8 Digital Output</li><li>• Open platform to explore wide PLC and Pneumatic applications</li><li>• DIN rail mounting for PLC</li><li>• Function and identification of Pneumatic components and their symbols</li><li>• Powerful instruction sets, High execution speed</li><li>• Extremely easy and student friendly software</li><li>• Several sample Ladder programs</li><li>• Practice troubleshooting skills</li><li>• Compact tabletop ergonomic design</li><li>• Robust construction</li><li>• Toggle Switches, LED`s, Buzzer, Double acting cylinder, 5/2 solenoid valve, Flow control valve, Manifold,5/2 hand lever valve.</li><li>• Mounting panel for Pneumatic Components</li><li>• Sequential &amp; Linear Pneumatic Control</li><li>• Understanding of Industrial Pneumatic Components</li><li>• Pneumatic Safety awareness</li><li>• Exhaustive course material &amp; references, Ready experimental details</li></ul>	<p>XNOR gate using PLC</p> <ul style="list-style-type: none"><li>• Study of Sensors like Proximity Sensor and Limit Switch</li></ul>
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	<ul style="list-style-type: none"><li>• `One Touch Push in Fittings` for easy fitting of PU tubes - which are provided for fast &amp; leak-proof connections</li></ul>	
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## FINANCIAL BID OF

### SUPPLY & INSTALLATION OF EQUIPMENT FOR CONTROL SYSTEM LAB, SoE

S.NO.	ITEM DESCRIPTION	QTY	Quoted Model & Make	Unit Price (in Rs.)	Total Price (in Rs.)
1	D.C. Position Control Trainer	01			
2	A.C. Position Control Trainer	01			
3	Stepper Motor Control Trainer	01			
4	D.C. Motor Speed Control	01			
5	Level Measurement & Control Trainer Kit	01			
6	Light Intensity Control	01			
7	PLC Controlled Electro Pneumatic Training Platform. PLC Operated Electro Pneumatic Plateform. 12 Digital input, 8 Digital output	01			

I abide by all the terms & conditions of the tender.

(SIGNATURE OF THE BIDDER)  
WITH SEAL

NAME: .....