



विश्वेश्वरय्या राष्ट्रीय प्रौद्योगिकी संस्थान, दक्षिण अंबाझरी मार्ग नागपुर-440010 (भारत)

VISVESVARAYA NATIONAL INSTITUTE OF TECHNOLOGY, SOUTH AMBAZARI ROAD, NAGPUR – 440010
091-0712-2801369, 2801243, 2801815, 2801814, Email: storesofficer@vnit.ac.in

(Please mention "REF NO" in all documents)

LIMITED TENDER ENQUIRY (SINGLE BID)

REF No.: VNIT/STR/LT/ECE/KMB/DG/175

Date: 30.01.2019

To, _____

REF No. OF THIS LETTER MUST BE MENTIONED ON THE ENVELOPE CONTAINING YOUR QUOTATION

Subject: – Limited Tender Enquiry (Single Bid) for Procurement of "Trainer Kits" for Electronics & Comm.
Engg., VNIT, Nagpur

Dear Sir / Madam,

You are invited to submit your most competitive quotation for the supply of following items / goods as per time schedule of submission, terms and conditions mentioned below;

Schedule of Tender/ Bid Submission

Date of Issue : Thursday 31st January 2019
Last Date & Timing of Submission the Tender : Wednesday, 13th February 2019, Time 3.00 PM
Date & Timing of opening the Tender : Wednesday, 13th February 2019, Time 3.30 P.M.
EMD – Rs. 16600/-

Item particulars

SN	Item particulars	Quantity
1	Trainer Kits (For Research Purpose only) Detail specification as per Annexure-A	
	Trainer Kit -01 – Process control simulator (Linear system and PID controller based)	02 Nos.
	Trainer Kit -02 – Controller Tuning (PC based) Trainer	02 Nos.
	Trainer Kit -03 – Stability Analysis of Linear System Trainer	02 Nos.
	Trainer Kit -04 – Digital Simulation of Linear System Trainer	02 Nos.
	Trainer Kit -05 – DC Servo Motor PID Controller Trainer	02 Nos.
	Trainer Kit -06 – DC Motor Position Control System Trainer	02 Nos.
	Trainer Kit -07 – Potentiometer Error Detector	02 Nos.
	Trainer Kit -08 – Lead Lag Network Simulator (frequency response analysis)	02 Nos.
	Trainer Kit -09 – μ C & MATLAB based Control System Trainer	02 Nos.
	Trainer Kit -10 – Level Control System	01 Nos.

[The bidder should offer / quote special educational discount for the Institute.]

Signature of Bidder with Seal & Date

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ANNEXURE-A

Procurement of Trainer Kits for Control Engg. Lab

Required Common Features for all trainer kits

1. Patch cords, connectors and all other required accessories.
2. In-built IC regulated power supply/ in-built power supply.
3. Full self-explanatory (mimic) diagram on front panel.
4. Self-contained Power ON/OFF switch with indication.
5. Installation to be done in Electronics Dept of VNIT Nagpur.
6. The trainer kits should comply with list of experiments attached to it.
7. Detailed manual documentation of each individual experiments to be performed on separate trainer kits with complete experimental steps, related theoretical details, experimental tables, results, graphs and detailed discussion.
8. Detailed catalogue with literature.

Trainer Kit-01

Process control simulator based on the study of linear system & PID controller

(Required 02 Nos)

Features and Specification

1. Built in Function Generator with minimum sine and square wave generator
2. Self-contained/ in built power supplies
3. Full self-explanatory (mimic) diagram on front panel
4. Self-contained Power ON/OFF switch with indication.
5. All simulated PID controllers with Derivative, Integral and proportional action control scaled in different Derivative, Integral and the proportional time band, individually
6. Process : Time constant of simple lags-10ms (fast) of 1ms (slow), Time constant of integrator- 10ms (fast) of 1ms (slow), and Distance-velocity lag-10ms
7. Controller:
 - Set Value Range: - 0 to + 10V
 - Integral action Time range: 250ms to 5 ms (fast); 25s to 0.5s (slow)
 - Derivative action Time range: 0-20ms (fast); 0-2 s (slow)
 - Proportional Band (p): - Corresponding to gain constants 0.5 to 25.
 - Display # 2 no's is to be provided to monitor the set value and measured value / deviation.
8. Detailed Manual and Document to be provided.

List of experiments to be performed

1. Time domain study of a linear system & PID controller
 2. Frequency response analysis of a linear system process & PID controller for a range of 0.5 Hz to 1 KHz
 3. Open loop & closed loop response of 1st, 2nd and 3rd order process with different types of system
 4. Open loop and closed loop responses of various process configurations.
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Trainer Kit-02

PID controller tuning trainer based on PC

(Required 02 Nos)

Features and Specifications

1. In built IC regulated power supply
2. Full self-explanatory (mimic) diagram on front panel
3. Acquisition system based on PC: 12 bit, 8 channel ADC input and 12 bit single channel DAC output
4. Process
 - a. Four single orders process of 1ms and 2ms Fixed gain and Time constant.
 - b. Four single order process for design purpose so that students are able to design the individual process with required time constant and Gain
 - c. Provision to study 1st, 2nd, 3rd and 4th order response

5. Self-contained Power ON/OFF switch with indication.
6. Detailed Manual and Document to be provided.

List of experiments to be performed

1. Study of different order of linear system and variable time constant linear system responses (1^{st} to 7^{th} order minimum)
2. Design of controller using Root Locus method
3. Design of controllers using bode plot
4. Design of controller using Nyquist method
5. Design of controller by Ruth Hurwitz criteria method
6. To find the optimum tuning parameter
7. Evaluation of Frequency domain specification, as GM, PM etc

Trainer Kit-03

Linear system stability analysis

(Required 02 Nos)

Features and Specification

1. Built in Function Generator with minimum sine and square wave generator
2. Self-contained power supplies
3. Self-contained Power ON/OFF switch with indication.
4. Full self-explanatory (mimic) diagram on front panel
5. Proportional Band - Corresponding to gain constants 0.5 to 25.
6. Time constant of simple lags – 1 ms, 0.47 ms
7. Time constant of integrator – 1s
8. Detailed Manual and Document to be provided.

List of experiments to be performed

1. Open loop responses of various process configurations.
 2. Time domain analysis of a linear system.
 3. Stability analysis of a linear process by gain variation method and by Root Locus analysis.
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Trainer Kit-04

Digital simulation of linear system

(Required 02 Nos)

Features and Specification

1. Full self-explanatory (mimic) diagram on front panel
2. Built in op-amp based process with fixed time constant.
3. Built in function generator contained square wave generator as test input to the Digital controller.
4. Self-contained Power ON/OFF switch with indication.
5. Frequency range 0.1 to 1 KHz along with a switch that is used to vary the frequency
6. Amplitude Range: 0-5V
7. DAS card consists:
 - a. Serial port based data acquisition
 - b. On chip 08 no's of 12bit ADC.
 - c. 4 Channel Analog input of voltage range (0-10)V DC.
 - d. Two channels ADC can be configured as simultaneous inputs.
 - e. Two channel DAC of 12 bit resolution, voltage output range (0 - 5)V.
 - f. 16 Channel digital input and output lines.
8. Software Features of atleast:
 - a. Second order system response.
 - b. Process statistic plot.
 - c. Data logging.
 - d. On-line monitoring.
 - e. On-line/Off-line Analysis.
9. Detailed Manual and Document to be provided.

List of experiments to be performed

1. Digital simulation of 1st and 2nd order system data logger, monitoring and analysis.
2. Mathematical modelling

Trainer Kit-05

DC servo motor PID controller

(Required 02 Nos)

Features and Specification

1. Full self-explanatory (mimic) diagram on front panel
2. Self-contained Power ON/OFF switch with indication.
3. One 12V PMDC Motor mounted on a open frame.
4. Speed Range: 0 to 1500 RPM.
5. Speed Sensor fixed on the frame.
 - a. Photo interrupter with optical Encoders.
6. One F/V converter to convert the pulses to voltage output.
7. PID Speed controller is to be provided to select
 - a. Proportional circuit.
 - b. Proportional plus Integral circuit.
 - c. Proportional plus Integral plus Derivative circuit.
8. One 3½ digit display to display the speed of the DC Servo motor / set value.
9. A switch is to be provided to select the reference or the actual speed.
10. A separate panel for function generator (variable amplitude, frequency, offset and frequency range) to produce at-least Step, Sinusoidal and Ramp waveforms.
11. All important signals are to be terminated at sockets. So that, the student can monitor / measure the signals using CRO, DVM, Frequency counters etc.
12. Power supply Input 230 V. 50 Hz, Single Phase AC, Loading arrangement
13. PWM based MOSFET Power Amplifier
 - a. One MOSFET is used as power device.
 - b. Rating: 500V @ 8 Amps.
 - c. Control circuitry with opto-coupler Isolation.
 - d. One potentiometer is to be provided to control the duty cycle of the chopper.
 - e. Provision to feed the control voltage to vary the duty cycle from the Personal Computer/ Microprocessor / Microcontroller.
14. Detailed Manual and Document to be provided.

List of experiments to be performed

1. Analyze the Speed Vs Voltage and speed vs torque characteristics.
2. To determine the motor gain and torque Constant
3. Study of time/frequency response using the Step, Ramp and Sinusoidal inputs.
4. Study of closed loop second order response of the system using PID controller.
5. Study of control system components.
6. Study of controller to measure its gain.
7. Study the closed loop system and its performance with P, PI and PID controller
8. Effect of disturbance input on open loop and closed loop system with P-Controller.
9. Study of disturbance rejection with P, PI and PID controller for various values of gains.

Trainer Kit-06

DC motor position control system

(Required 02 Nos)

Features and Specification

1. Full self-explanatory (mimic) diagram on front panel
2. **Controller:**
 - 2 Analog PI controller is to be provided for position control with cascaded feedback (Position & Speed)
 - PI controller is to be provided with Front panel variable setting for,
 - i. Variable gain for Proportional controller (P)
 - ii. Variable Integral Time for Integral controller (I)

3. **Converter:**
 - 4 Quadrant MOSFET chopper is to be provided for forward & reverse direction.
 - MOSFET driver to be provided.
4. **Mechanical Setup:**
 - a. One PMDC 12 volt with Gear is to be provided
 - b. Motor speed 1500rpm
 - c. Gear ratio 30: 1 to run 50rpm speed
 - d. One Servo potentiometer is to be provided at the low speed shaft for the position setting.
5. One Tachogenerator is to be provided for cascaded feedback.
6. One at-least 3 ½ digit display to be used to display the actual & reference position
7. Self-contained Power ON/OFF switch with indication.
8. Detailed Manual and Document to be provided.

List of experiments to be performed

1. To study the closed loop position control system of DC motor.
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Trainer Kit-07

POTENTIOMETER ERROR DETECTOR

(Required 02 Nos)

Features and Specification

1. Full self-explanatory (mimic) diagram on front panel
2. Built-in power supply, In built IC regulated power supply.
3. Two multiturn potentiometers is to be provided to study the linearity and the maximum angle of rotation.
4. Self-contained Power ON/OFF switch with indication.
5. Two protractors are to be provided for visual indicator.
6. Comparing element circuits for finding the error.
7. Rotary switch is to be provided for selectable AC/DC operation.
8. Detailed Manual and Document to be provided.

List of experiments to be performed

1. Study the characteristics of two potentiometer analyzer position error detector
 - a. Linearity, sensitivity and maximum angle of rotation
 - b. Determination of error detector gain.

Trainer Kit-08

Lead-Lag Network -frequency response analysis

(Required 02 Nos)

Features and Specification

1. Built-in Function Generator (sine, square, ramp).
2. Self-contained power supplies
3. Power ON/OFF switch with indication.
4. Full self-explanatory (mimic) diagram on front panel
5. The simulated process.
 - a. Simple Lag Process
 - b. Simple Lead Process
6. The simulated PID controller
 - a. Integral controller scaled in Integration time.
 - b. Derivative controller scaled in derivative action time.
 - c. Proportional band control scaled in % proportional band (PB).
7. Lag process of time constant not more than 10 ms/1s
8. Lead process of time constant not more than 10 ms/1s.
9. Controller:
 - a. Set Value Range: - 0 to + 10V
 - b. Integral action Time range: 250ms to 5 ms (fast); 25s to 0.5s (slow)
 - c. Derivative action Time range: 0-20ms (fast); 0-2 s (slow)
 - d. Proportional Band (p): - Corresponding to gain constants 0.5 to 25.
10. Detailed Manual and Document to be provided.

List of experiments to be performed

1. Analysis of the first and second order systems on the application of proportional, integral and derivative control to the improvement of the system performance
2. Frequency response analysis of a linear system (process) & PID controller.
3. Frequency response of Lag, Lead and Lead-Lag network
4. Open loop & closed loop response of the 2nd order process. (Type 0 systems).
5. Stability analysis.
6. Open loop and closed loop responses of various process configurations.
7. P, PI, PID design and performance valuation in each case.
8. Lead and Lag network compensation using Lead-lag network
9. Various frequency response analyses by:
 - i) Bode plot.
 - ii) Polar plot.

Trainer Kit-09**Level Control System Trainer****(Required 01 No.)****Features and Specification**

1. A transparent process tank of (5 liters) fitted with Stainless steel with graduated level scale.
2. RF Capacitance type level probe to sense the level upto 250mm.
3. Rust proof, water reservoir of 10 litres capacity.
4. A drain valve to be fitted with the process tank to give disturbance to the process.
5. The entire water path to be guided by flexible tubes.
6. Signal conditioner for RF Capacitance.
7. Power supply
8. Analog PID controller to provide closed loop level control system
9. Pump, Thyristor based power driver to be used to control the level by varying pump voltage.
10. Provision to vary the proportional, integral and derivative parameters.
11. To be Mounted in a powder coated cabinet/wooden Cabinet.
12. Detailed Manual and Document to be provided.

List of experiments to be performed

1. To study the characteristics of level transmitter.
2. To study the PID characteristics of the level system.

Trainer Kit-10**Micro-controller & Matlab based Control System****(Required 02 Nos)****Features and Specification**

1. Digital Process trainer system
2. 16 bit microcontroller based PWM, P, PI and PID controller
3. Variable gain for proportional controller (P)
4. Variable integral time for integral controller (I)
5. Variable Derivative time for Derivative controller (D)
6. Alpha Numeric LCD is provided to select position (or) speed control and also to select P, PI (or) PID operation.
7. 02 switches provided to vary the set points and controller parameters
8. Interfaced with MATLAB and others
9. Detailed Manual & Document to be provided.

List of experiments to be performed

1. To perform all related experiments of the DC servo motor control system
2. To perform all related experiments of the controller tuning trainer
3. To perform all related experiments of the linear system simulation trainer
4. To perform all related experiments of stability analysis.

GENERAL INSTRUCTIONS, TERMS & CONDITIONS

1. The vendor shall submit the tender/quotation enquiry in the Institute's prescribed format.
2. Bidder shall submit Firm's registration certificate, GST registration certificate, PAN, Authorization certificate, Delivery Period, Warranty/Guarantee, others etc with the bid.
3. **Authorization Certificate:** Sole selling agent/Authorized distributors/Dealers/Suppliers are eligible to bid on behalf of original Equipment Manufacturers (OEM) provided they submit requisite authorization and self certification from the (OEM). The bidder should enclose the latest authorization certificate from the (OEM). Offer submitted without proper authorization shall be rejected
4. The duties, taxes and other levies payable by the vendor shall be shown separately in bidding document. The basic price per unit should be separately mentioned in the given format at **Annexure-I**. Duties & taxes viz. Custom, GST, Freight / Transportation, Packing & Forwarding, Insurance, Price Ex-Works etc. shall be indicated separately in the given format only.
5. Each Vendor shall submit only one quotation. All the information shall be furnished by the vendors as per Institute prescribed format. Any other format will lead to disqualification. Each and every document should be submitted duly signed & stamped. Incomplete or Conditional Quotation(s) will not be accepted.
6. **Evaluation of Quotations:** The Purchaser will evaluate and compare the quotations determined to be substantially responsive i.e. which
 - (a) Are properly signed; and
 - (b) Confirm to the terms and conditions, and specifications.
7. The Prices should be quoted F.O.R. VNIT, Nagpur on delivery basis.
8. The rates quoted by the bidder shall be FIRM & FIXED and shall not be variable/subject to adjustment on any account.
9. Each Vendor shall submit only one quotation. Vendor shall furnish price & other information in the prescribed Price Bid format. Each document submitted with quotation should be duly attested & stamped by the vendor, failing which submitted quotation will be treated as Non-Responsive. Incorrect, Incomplete or Conditional Quotation(s) will not be accepted and will be treated as Non-Responsive.
10. If any document of tender /quotation enquiry, certificate etc. submitted by the vendor is observed to be incorrect /false/ forged/having ambiguity, intentionally or un-intentionally at any stage, the tender/quotation submitted by the vender is liable to be treated Disqualified/Non-Responsive. Further the Institute reserves the right to initiate any action as deemed fit in such case against the vendor including the action of blacklisting of firm.
11. **Educational Discount:** VNIT, Nagpur is a Govt. of India's Institute of National Importance engaged in education & research of National & International repute, the Vendors shall give / offer the special educational discount on quoted rates.
12. **Items for Research Purpose: Concessional GST @ 5% will be applicable for purchase of goods viz Scientific & Technical instruments and other, required for the Research purposes only.** This is in accordance of Govt. of India, Ministry of Finance Notification 45/2017-Central Tax (Rate) dated 14th November, 2017 and 47/2017-(Integrated Tax (Rate) dated 14th November, 2017, and VNIT Circular Ref.- VNIT/Acct/2017-18-GST/5390 dated 27th November, 2017. The description of goods is given in Govt of India notification dated 14th November, 2017 mentioned above. A certificate in this respect will be issued to the vender by the Institute.
13. **Earnest Money Deposit (EMD):** Bidder shall submit EMD in form of Demand Draft / Fixed Deposit Receipt / Bank Guarantee in favor of "Director, VNIT Nagpur" payable at Nagpur. The EMD to be submitted strictly in a separate envelope super scribed with Vendor / Firm's name & address & also on back side of DD with stamp. **Bid received without EMD will be summarily rejected.**

14. **EMD Exemption :** Exemption is applicable to MSE firms engaged in manufacture/production of goods or providing of any services, as per MSMED act, 27/2006 chapter -1 2(e), subject to furnishing of relevant valid certificate (indicating terminal validity date of their registration) for the item tendered. Selling agent/authorized distributors/dealers/suppliers are not eligible for exemption in tendered items.
15. Expression of inability for the supply or delivery of good/s as per specifications will lead to cancellation of PO and EMD (as submitted) will be forfeited. Further Institute may also disqualify / debar the Vendor from participating in any of its future enquiries for a period as recommended by institute authorities.
16. The Firm/Company Bank/RTGS/NEFT/ECS details must be submitted along with the Quotations/Tenders on the letter head.
17. Information brochures/Product catalogue, if any must be accompanied with the quotation clearly indicating the model quoted for.
18. **Client List:** Bidder shall furnish information of Client list along with the order copy of similar good/s / equipment supplied to any IIT/NITs/ any Govt. Organization including details of price & all other charges / duties with the bid.
19. **Taxes:** GST or any other taxes as per Govt. norms shall be applicable from time to time. The % of Tax must be indicated separately in the quotation.
20. **Delivery of Goods** -Vendor shall deliver/supply the goods **within 4 (Four) weeks** period from the date of receipt of purchase order. Goods shall be supplied / delivered by the vendor / bidder at the installation site in concerned laboratory/ department of VNIT, Nagpur at free of cost on working days. Vendor shall deliver the material strictly as per the delivery schedule given in P.O., failing which **Liquidated Damages Clause** will be applicable.
21. **Liquidated Damages Clause:**
 - a) The Director, V.N.I.T. Nagpur reserves the right to recover from the vendor, liquidated damages a sum equivalent to 1/2 percent of the price of the undelivered stores at the stipulated rate for each week or part thereof, during which the delivery of such stores, may be delayed subject to, a maximum limit in the case of an order exceeding Rs. One Lakh in value, up to 10 percent and in the case of an order not exceeding Rs. One Lakh in value up to 5 percent of the stipulated price, of the stores so undelivered.
 - b) To purchase elsewhere, on vendor's accounts, at his risk, the stores etc. undelivered, or other of a similar description, where others exactly employing with the particulars, are in the opinion of the Director, Visvesvaraya National Institute of Technology, Nagpur are not readily procurable, without cancelling the contract, in respect of consignment not yet due for delivery.
 - c) If the Supplier fails to deliver the material/goods, expression of inability for the supply or delivery of good/s as per specifications will lead to cancellation of PO and EMD (as submitted) will be forfeited. Further Institute may also disqualify / debar the Vendor from participating in any of its future enquiries for a period as recommended by institute authorities. In case of Supplier [registered with MSME/NSIC/SSI etc.] not required to submit the EMD, the Institute reserves the right to initiate action including reporting to principal Govt. authorities.
 - d) To cancel the contract -
In the event of action being taken under (b) or (c) above, the vendor shall be liable to make good for any loss, which the Institute may sustain, by reason of higher price of items/goods, so purchased or the otherwise, howsoever:
The decision of the Director, Visvesvaraya National Institute of Technology, Nagpur shall be final as regards to the acceptability of stores supplied by the seller and the Director, Visvesvaraya National Institute of Technology, Nagpur, shall not be required to give any reason in writing or otherwise at any time for the rejection of stores.
22. **Valid Period of Quotation/offer:** The quotation/offer shall be normally valid for a period of 180 days from the date of opening the tender.
23. **Rate Contract:** If any of the items/ materials mentioned are already under the DGS&D rate contract, you are requested to give us the advantage of the contract rates as VNIT Nagpur is an Educational and Research Institute sponsored by the Government of India.
24. **Installation/Testing:** Goods / Equipments shall be delivered / installed at concerned laboratory / department of VNIT by the Bidder at free of cost. Installation & testing of good/s supplied should be completed preferably within 10 days of supply of good/s.

25. **Payment (Indigenous Item):** Institute will release the full & final (100%) payment after delivery of items and its successful installation/ demonstration at concerned department / laboratories of VNIT Nagpur. The vendor will be required to submit the bills in triplicate along with delivery memo. Payment will be made through Crossed Cheque / ECS / NEFT/RTGS.
26. **Guarantee/Warranty:** Normal comprehensive **Warranty/Guarantee of 3 years** shall be applicable to the supplied goods. In case any part or whole of the equipment is found to be defective during the guarantee period, then the same will have to be replaced/repaired free of cost at VNIT by the vendor.
27. The vendor shall take full responsibility in case of any damage, loss or injury to any person / building or to any part thereof, and shall repair / and make good the loss, at his own cost.
28. It will be the sole discretion of VNIT to accept or reject the tenders/quotations in case of deviations, if any, from the technical specification.
29. Bidder should enclose required documents/copies failing which quotation / tender will be disqualified.
30. **Any corrigendum/ amendment regarding this limited tender enquiry will be issued on the Institute website only [http; //stores.vnit.ac.in]**
31. For any dispute, the place of jurisdiction shall be Nagpur, India only.
32. Director, VNIT, Nagpur reserves the right to increase/decrease the quantity of goods at any stage.
33. Director, VNIT, Nagpur reserves the right to accept or reject or cancel any or all enquires or quotations/PO at any stage without assigning any reason thereof.
34. **It will be presumed that the vendor has read carefully all the above mentioned instructions, terms & conditions and abide by same.**
35. Quotations received after the last date of submission will not be considered.
36. The Quotation in sealed envelope super-scribed with **“Limited Tender Enquiry for procurement of “Trainer Kits” for “Electronics & Comm. Engg. Dept.”** and to be sent to Dy. Registrar (Stores), Visvesvaraya National Institute of Technology, South Ambazari Road, Nagpur - 440 010, Maharashtra (India). The quotation can also be submitted in person in the **“Quotation/Tender Box”** at the Stores Section, VNIT, Nagpur - 440010 on any working day. **The last date of submission is Wednesday, 13th February 2019, by 3.00 P.M.** The vendors / firms name with complete address must be mentioned on the envelope.
37. **The date of opening the quotation/tender is Wednesday, 13th February 2019 by 3.30 P.M.**
38. All Communication are to be addressed to: –

DIRECTOR

Visvesvaraya National Institute of Technology,
South Ambazari Road,
Nagpur - 440 010, Maharashtra (India)

Yours faithfully,

Sd/-
DEAN (P&D)

ANNEXURE-I
"PRICE/COMMERCIAL BID"

REF No.: VNIT/STR/LT/ECE/KMB/DG/

Date: January 30, 2019

ITEM: "Trainer Kits"

Sr. No	Item with Specifications	Qty	Basic Rate P.U. (Rs.)	GST 5% & Amount P.U. (Rs.)	Total Amount P.U. (Rs.)
1	"Trainer Kits" (Detail specification as mentioned above)				
	Trainer Kit -01 – Process control simulator (Linear system and PID controller based)	02			
	Trainer Kit -02 – Controller Tunning (PC based) Trainer	02			
	Trainer Kit -03 – Stability Analysis of Linear System Trainer	02			
	Trainer Kit -04 – Digital Simulation of Linear System Trainer	02			
	Trainer Kit -05 – DC Servo Motor PID Controller Trainer	02			
	Trainer Kit -06 – DC Motor Position Control System Trainer	02			
	Trainer Kit -07 – Potentiometer Error Detector	02			
	Trainer Kit -08 – Lead Lag Network Simulator (frequency response analysis)	02			
	Trainer Kit -09 – µC & MATLAB based Control System Trainer	02			
	Trainer Kit -10 – Level Control System	01			
Educational Discount					
Total Cost F.O.R. V.N.I.T. Nagpur					

[Note - The bidder should offer / quote special educational discount for the Institute.]

[A] DUTIES & TAXES (if applicable):

1. Custom Duty if any : _____
2. GST @ _____% : _____
3. Freight/ Transportation : _____
4. Insurance @ _____% : _____
5. Packing & Forwarding : _____
6. Others, (if any) : _____
7. **Final Offer (Including Installation Charges & Taxes) FOR VNIT Nagpur** : _____

[B] Others Details (Enclosed)

1. **EMD No. & Amount** : No.: _____ Dt. ____/____/2019 Rs. 16600/-
2. Specification as per Requirements : Yes / No
3. Authorization Certificate : Yes / No
4. Firms Registration Certificate : Yes / No
5. GST Registration Certificate : Yes / No
6. PAN No. : Yes / No
7. Details of client lists : Yes / No
8. Warranty/Guarantee : _____ Years
9. Delivery period : _____
10. Others, (if any) : _____

Note: Price/Commercial Bid & other details should be furnished as per Institute's prescribed format if failed, the Price / Commercial Bid is treated as unresponsive and will be disqualified. The Firm/Company agrees to supply the above items for **final offer price (Rs. _____/- [In Words Rs.....])** inclusive of duties & taxes at [A] above within the period specified in the Invitation for Quotations. We also confirm that the normal commercial **warranty /guarantee of 36 months** shall apply to the offered goods.

Signature of Bidder with Seal & Date

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