



THE NATIONAL INSTITUTE OF ENGINEERING

(An Autonomous Institution)

TECHNICAL EDUCATION QUALITY IMPROVEMENT PROGRAMME PHASE-III

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Date: 26-02-2018

Invitation for Quotations

**Quotations are invited for the procurement of the following equipment under
TEQIP– III**

Equipment: – Control Systems Equipments - Quantity - One.

Sr. No	Item Name	Specifications
1	AC Motor Study unit	2-phase a.c. servomotor - 12V/ 50Hz per phase; Small generator for loading; 4-digit speed display; 3-digit time constant display; 3½ digit r.m.s. Voltmeter; 3½ digit d.c. panel meter; Voltage regulated internal supplies; Detailed literature with sample results
2	Compensation Design Unit	Simulated 'uncompensated' system having adjustable damping. Peak percent overshoot MP, variable from 20% to 50%, and steady state error variables from 50% to 0.5%; Compensation network implementation through built-in variable gain amplifier. Gain is adjustable from 1 to 11; Built-in square and sine wave generators for transient and frequency response studies; Frequency adjustable from 25Hz – 800Hz (approx.); 220V±10%, 50Hz mains operation
3	DC Positional Control Systems	Position control of a 12V, 1A d.c. gear motor (50 rpm); Provision for positive and negative tachogenerator feedback; Tacho constant: 2V/1000 rpm approximately; Calibrated dials for reference and output position: resolution 1°; Servo-potentiometers with full 360° rotation; mP based waveform capture/display card; Built-in 3½ digit DVM for signal measurements; Built-in step signal and IC regulated power supplies for electronic circuits; Separate unit for motor in a see-through cabinet; 220V±10%, 50Hz mains operation; Literature and patch cords included
4	Educational Analog Computer	To simulate second and third order systems; Provision to tap intermediate signals; Potentiometers to vary gain; Literature and patch cards
5	Linear simulator system	"Simulated first, second and third order system of type-0 and type-1 (4 combinations) Calibrated variable gain amplifier (Resolution 1 : 1000) Built-in signal sources: Square wave and Triangular Frequency: 45-90Hz Amplitude: 0-2.5V approximately Trigger output for perfectly steady display on CRO Uncommitted amplifier for phase adjustment Provision

		for disturbance inputs 220V±10%, 50Hz mains operation "
6	Magnetic Levitation System	Object suspended in air by magnetic force; Controller design to maintain stability; Position changing by reference; Built-in power supplies, meters etc; 220V/50Hz operation
7	PID Control unit	Simulated blocks – dead time (transportation lag), integrator, time constants, error detector and gain; PID Controller (configurable as P, PI, PD or PID); Proportional Band: 5% to 50% (Gain 2-20); Integral time: 10msec - 100msec; Derivative time: 2-20msec; Built-in signal sources; Set value: -1V to +1V; Square wave: 1V p-p (min.) at 40Hz (typical); Triangular wave: 1V p-p (min.) at 40Hz (typical); Built-in 3½ digit DVM for d.c. measurements; Built-in IC regulated power supply; 220V±10%, 50Hz mains operation
8	Relay Control Unit	Simulated electronic relay using high speed IC's; Simulated 2nd order linear plant. Facility for displaying x and x(dot) signals; Dead zone variable from 0-600mV (approx.); Hysteresis variable from 0-500mV (approx.); Built-in signal sources – sine and square Amplitude: 0-1V (min.) variable; Frequency: 10, 20, 40, 80, 100, 200, 400, 800 and 1000Hz; IC regulated internal power supplies; 220V±10%, 50Hz mains operation; Literature and patch cords included

Delivery Period: 60 Days from the date of issue of purchase order. Warranty Period: 36 Months

Terms and Conditions

- i. Quotation should be invariably in the prescribed **format enclosed**; otherwise it is **liable to be rejected**.
- ii. Quotation should be sent in a **sealed cover superscribed as "Quotation for the supply of Control Systems Equipments under TEQIP III" to the office of the Principal (TEQIP- III), The National Institute of Engineering, Manandavadi Road, Mysore 570 008.**
- iii. Last date and time for submission of quotation **12th March 2018, 17:00 hours.**
- iv. Installation and demonstration shall be at the Department of Electrical and Electronics Engineering, NIE, Mysore.
- v. Quotation should be valid for **45 days** from the last date of submission of quotation.
- vi. Equipment should be delivered at the **Department of Electrical and Electronics Engineering, The National Institute of Engineering, Manandavadi Road, Mysore - 570008.**
- vii. **100% payment on installation, demonstration, successful completion in all respects and final acceptance by the Purchaser.**
- viii. **Authorized Dealer/ Channel Partner Certificate from the company** should be enclosed along with the quotation.
- ix. The Purchaser reserves the right to accept or reject any quotations and to cancel the bidding process and reject all quotations at any time prior to the award of contract.

FORMAT FOR QUOTATION SUBMISSION

(In letterhead of the supplier with seal)

Date: _____

To:

Sl. No.	Description of goods (with full Specifications)	Qty.	Unit	Quoted Unit rate in Rs. (Including Ex Factory price, excise duty, packing and forwarding, transportation, insurance, other local costs incidental to delivery and warranty/ guaranty commitments)	Total Price (A)	Sales tax and other taxes payable	
						In %	In figures (B)
Total Cost							

Gross Total Cost (A+B): Rs. _____

We agree to supply the above goods in accordance with the technical specifications for a total contract price of Rs. _____ (Amount in figures) (Rupees _____ amount in words) within the period specified in the Invitation for Quotations.

We confirm that the normal commercial warranty/ guarantee of _____ months shall apply to the offered items and we also confirm to agree with terms and conditions as mentioned in the Invitation Letter.

We hereby certify that we have taken steps to ensure that no person acting for us or on our behalf will engage in bribery.

Signature of Supplier

Name: _____

Address: _____

Contact No: _____