



## INVITATION LETTER

Package Code: TEQIP-III/2019/nitt/157

Current Date: 28-Nov-2019

Package Name: : Flow Control Laboratory Trainer

Method: Shopping Goods

To,

### Sub: INVITATION LETTER FOR : FLOW CONTROL LABORATORY TRAINER

Dear Sir,

1. You are invited to submit your most competitive quotation for the following goods with item wise detailed specifications given at Annexure I,

S.No	Item Name	Quantity	Place of Delivery	Installation Requirement (if any)
1	Flow Control Laboratory Trainer	1	Department of Chemical Engineering , NIT Trichy 620015.	Yes.

Government of India has received a credit from the International Development Association (IDA) towards the cost of the **Technical Education Quality Improvement Programme [TEQIP]-Phase III** Project and intends to apply part of the proceeds of this credit to eligible payments under the contract for which this invitation for quotations is issued.

#### 3. Quotation

- 3.1 The contract shall be for the full quantity as described above.
- 3.2 Corrections, if any, shall be made by crossing out, initialling, dating and re writing.
- 3.3 All duties and other levies payable by the supplier under the contract shall be included in the unit Price.
- 3.4 Applicable taxes shall be quoted separately for all items.
- 3.5 The prices quoted by the bidder shall be fixed for the duration of the contract and shall not be subject to adjustment on any account.
- 3.6 The Prices should be quoted in Indian Rupees only.

4. Each bidder shall submit only one quotation.

5. Quotation shall remain valid for a period not less than **60** days after the last date of quotation submission.

**GST 5%-as per column ((4) II under notification no.45/2017 Central Tax- (Rate), Date. 14.11.2017 Notification no.46/2017 integrated Tax – (Rate), Date. 14.11.2017.**

6. Evaluation of Quotations: The Purchaser will evaluate and compare the quotations determined to be Substantially responsive i.e. which
- 6.1 are properly signed; and
- 6.2 Confirm to the terms and conditions, and specifications.
7. The Quotations would be evaluated for all items together.
8. Award of contract The Purchaser will award the contract to the bidder whose quotation has been determined to be substantially responsive and who has offered the lowest evaluated quotation price.
- 8.1 Notwithstanding the above, 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.
- 8.2 *The bidder whose bid is accepted will be notified of the award of contract by the Purchaser prior to expiration of the quotation validity period. The terms of the accepted offer shall be Incorporated in the purchase order.*
9. Payment shall be made in Indian Rupees as follows:

<b>Payment Description</b>	<b>Expected Delivery Period (in Days)</b>	<b>Payment Percentage</b>
Satisfactory Delivery & Installation and Satisfactory Acceptance	60	100

10. Liquidated Damages will be applied as per the below:  
Liquidated Damages Per Day Min %: N/A  
Liquidated Damages Max %: N/A
11. All supplied items are under warranty of **12** months from the date of successful acceptance of items and AMC/Others is **No**.
12. You are requested to provide your offer latest by **15:00** hours on **18-Dec-2019**. **Opening time :-18 December 2019 16.00 hours at TEQIP Office, Administrative Building, NIT Trichy.**
13. Detailed specifications of the items are at Annexure I.
14. Training Clause (if any) **one Day Training And Demo**
15. Testing/Installation Clause (if any) **Installation at Department of Chemical Engineering, NIT Trichy.**
16. Information brochures/ Product catalogue, if any must be accompanied with the quotation clearly indicating the model quoted for.

17. Sealed quotation to be submitted/ delivered at the address mentioned below, **Head of the Department, Department of Chemical Engineering, National institute of technology, Tiruchirappalli, Tamil Nadu- 620015.**

**Kind Attn: Dr. N. Samsudeen, Department of Chemical Engineering, National institute of technology, Tiruchirappalli, Tamil Nadu- 620015**

18. We look forward to receiving your quotation and thank you for your interest in this project.

Note : The cover should be duly superscribed

(1) Quotation Reference Number

(2) Quotation for the Supply of \_ \_ \_ \_ \_

(3) Date of opening \_ \_ \_ \_ \_

**(Dr. K.M.MEERA SHERIFFA BEGUM)**  
**HoD/Chemical. Engg**

**Annexure I**

Sr. No	Item Name	Specifications
1	Flow Control Trainer	<p><b>Technical Specification</b></p> <p>This experiment setup consists of a water reservoir, Flow sensor, Pump, Signal Conditioner, Power supply, a PC based AD/DA card are provided for the closed loop control of Flow of water.</p> <p>This trainer monitors the flow rate of water by using Turbine type sensor and controls the pump to establish a closed loop control (From ON/OFF upto PID) of water flow.</p> <p><b>Specification:</b></p> <ul style="list-style-type: none"> <li>➤ Rust proof water reservoir of capacity of (12 litres) provided for water storage.</li> <li>➤ Miniature FHP pump provided for water circulation.</li> <li>➤ Rotameter Range of (0-500 LPH) provided for visual indication of flow</li> <li>➤ A turbine type flow transducer is used for measuring "Flow rate of water".</li> <li>➤ Thyristor based power driver to control the pump and to vary the flow rate.</li> <li>➤ Hand valves are provided to give the disturbance externally</li> <li>➤ All water paths are guided by Rust proof tubes</li> <li>➤ Mimic diagram in the panel</li> <li>➤ All the Equipments are mounted in the fine powder coated cabinet</li> </ul> <p><b>DATA ACQUISITION SYSTEM [VDAS-01]</b></p> <p><b>Specification</b></p> <ul style="list-style-type: none"> <li>➤ Micro controller based CPU card</li> <li>➤ True plug and play</li> <li>➤ 62 kBytes of nonvolatile Flash/EE program memory</li> <li>➤ Integrates a high performance self-calibrating multichannel ADC, a dual DAC</li> <li>➤ Four kBytes of nonvolatile Flash/EE data memory, 256 bytes RAM, and 2 kBytes of extended RAM are also integrated on-chip</li> <li>➤ 8 Digital Input &amp; 8 Digital Output</li> <li>➤ Two channel current to voltage converter provided</li> <li>➤ Two channel voltage to current converter provided</li> <li>➤ RS232/USB Interface</li> <li>➤ In-Built IC regulated power supply</li> <li>➤ ADC/DAC signals and I/O lines are terminated at a 25 pin 'D' Male connector</li> </ul> <p><b>12-bit ADC &amp; 12 bit DAC</b></p> <ul style="list-style-type: none"> <li>➤ Analog Input : 8 Channel</li> <li>➤ Resolution : 12 bit</li> <li>➤ Sampling Rate : 420ksps</li> <li>➤ Range : 0 to 5v</li> <li>➤ Analog output : 2 Channel</li> </ul>

- Resolution : 12 bit
- Range : 0 to 5v

**I/V and V/I converter**

- No. of I/V : 2 Channel
- Input range : (4-20) mA
- Output Range : (0-5) V
- No. of V/I : 2 Channel
- Input range : (0-5) V
- Output Range : (4-20) mA
- Two channel of ADC & DAC is configured as I/V & V/I converter

**Software Features:**

- Windows 2000, XP based general purpose data acquisition control software having the
- features like,
- Menu driven Real time on screen monitoring
- Off-line analysis
- Data logging
- Process trend plot
- Control software like ON/OFF, Proportional, Proportional Integral, Proportional derivative and PID

**Note: Desktop computer must be supplied along with the experimental setup to control and monitoring the experimental process The specification of PC is as follows.**

**Desktop Computer Specification:**

- Processor: Core i5 9th Gen,
- RAM: 8 GB DDR4,
- Storage: 500 GB SSD HARD DRIVE,
- DISPLAY: 20-inch LED MONITOR (SQUARE)
- Accessories: WIRED KEYBOARD, WIRED MOUSE, USB 3.0, LAN, WIFI, UPS

**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)
<b>Total Cost</b>							

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. \_\_\_\_\_