

# NATIONAL INSTITUTE OF TECHNOLOGY

## TIRUCHIRAPPALLI – 15

### Department of Chemical Engineering

Web : [www.nitt.edu](http://www.nitt.edu)

Phone : 0431 - 2503100



# TENDER DOCUMENT

Tender Notification No.: NITT\CHL\PCLab\2009\01

Date: April 20, 2009

Name of the component : Inverted Pendulum on a cart

Quantity required : 01

EMD Amount : **INR 5000**

Delivery : **6 to 10 weeks after placing the purchase order**

Last Date of submission of Tender : **May 21, 2009 upto 3.00 p.m.**

Address for submission of Tender : The Director  
National Institute of Technology  
Tiruchirappalli – 620 015, India  
E-mail : [director@nitt.edu](mailto:director@nitt.edu)  
Phone No: +91-431-2503001, Fax: +91-431-2500133  
**(Attn: Dr. A. Seshagiri Rao, Chemical Engineering Dept.)**

Date of opening of bid : **May 21, 2009 at 4 p.m.**



**NATIONAL INSTITUTE OF TECHNOLOGY  
TIRUCHIRAPPALLI – 15**

**DEPARTMENT OF CHEMICAL ENGINEERING**

**Tender Notification No.:** NITT\CHL\PCLab\2009\01

**Dated:** April 20, 2009

**NOTICE INVITING TENDER**

The National Institute of Technology, Tiruchirappalli (NITT) is an autonomous body under MHRD, GOI, imparting Technical Education and engaged in Research Activities. It is proposed to procure the following component for the departmental academic/research activities.

Sealed Quotations are invited for the following component subject to the following terms and conditions, from the reputed manufacturers or their authorized dealers so as to reach this office on or before scheduled date and time. The quotations will be opened on the same day in the presence of bidders or their authorized agents who may choose to be present.

Name of the component : Inverted Pendulum on a cart  
Quantity required : 01  
EMD : INR 5000  
Time for completion of supply after placing purchase order : **6 to 10 weeks after placing the purchase order**  
Last Date of submission of Tender : **May 21, 2009 upto 3.00 p.m.**  
Tender to be submitted at the following address : The Director  
National Institute of Technology  
Tiruchirappalli – 620 015, India  
E-mail : director@nitt.edu  
Phone No: +91-431-2503001  
Fax: +91-431-2500133  
(Attn: Dr. A. Seshagiri Rao, Chemical Engineering Dept.)

***Place, Date and time of opening of bid*** :

**Date:** May 21, 2009      **Time:** 4 p.m.      **Venue :** Administrative Office, NIT, Trichy

**Note :** The Institute shall not be responsible for any postal delay about non-receipt / non delivery of the bids or due to wrong addressee.

## SECTION: 1 INSTRUCTION TO BIDDER

1. The bidders should provide list of customers of previous supply of similar items to Universities, Institutes or Government Departments/Undertakings/public sectors with contact details. The details of the bidder/profile should be furnished along with the copy of all related documents.

### 1.1 Documents to be submitted in the Bid:

- (i) The bidder should furnish copy of licence certificate for manufacture/supply of the item.
  - (ii) The bidder should furnish Income Tax PAN number
  - (iii) Catalogue of the product with detailed product specifications
  - (iv) Shelf-life of the chemicals offered for supply is to be specified.
  - (v) EMD, if applicable, by Demand draft drawn on any scheduled bank in favour of "**The Director, NIT, Trichy**" payable at Trichy should be submitted. EMD shall bear no interest. Any bid not accompanying with EMD is liable to be treated as non-responsive and rejected.
2. The bidder should submit their rate as per the format given in Section 4 of the Notice Quotation in this cover. Rate should be quoted in Indian Rupee. The rate should be quoted both in words and figures. All the pages of the bid should be signed affixing the seal. All corrections and overwriting should be initialed.

***The bid cover should be duly superscribed with the following details.***

***(1) Quotation Notification Number (2) Quotation for the supply of ..... (3) Date of opening .....***

***Mention "Kind Attention: Contact's person's name and phone number", and submit at the address given in the quotation Notice.***

3. The quotation will be acceptable only from the manufacturers or its authorized supplier.
4. The bid shall be in the format of price schedule given in Section 4. The contract form as per format given in section 5 shall be submitted. Incomplete or conditional quotation will be rejected.
5. Details of quantity and the specifications are mentioned in Section 3 appended to this quotation Notice.
6. The item to be used is strictly according to the specification and subject to test by the Institute/concerned authorities.
7. The Institute reserves the right to cancel or reduce the quantity included in the schedule of requirements at any time after acceptance of the quotation with a notice. The Contractor/Supplier shall have no claim to any payment of compensation or otherwise whatsoever, on account of any profit or advantage which he might have derived from the execution of the work/supply in full but he did not derive in consequence of the foreclosure of

the whole or part of the works.

8. 5% of the supply value will be retained by the Institute towards Performance Security and will be returned to the supplier after the period of warranty.
9. **Release of EMD:** The EMD shall be released after receipt of performance security from successful bidder.
10. **Validity of bids:** The rate quote should be valid for a minimum of 60 days. No claim for escalation of rate will be considered after opening the Quotation.
11. **Imports:** In case, goods are to be imported, the Indian agent should furnish authorization certificate by the principles abroad for submission of the bid in response to this Quotation Notice.
12. **Clarification of Quotation Document:** A prospective bidder requiring any clarification of the Quotation document may communicate to the contact person given in this notice inviting quotation.
13. **Amendment of quotation document:** At any time prior to the last date of receipt of bids, Institute may for any reason, whether at its own initiative or in response to a clarification requested by prospective bidder, modify the Quotation document by an amendment.
14. ***The Institute may at its own discretion extend the last date for the receipt of bids.***
15. The bids shall be written in English language and any information printed in other language shall be accompanied by an English translation, in which case for the purpose of interpretation of the bid, the English translation shall govern.
16. The Institute reserves the right of accepting any bid other than the lowest or even rejecting all the bids. The decision of the Institute Purchase Committee is final in all matters of quotation and purchase.
17. The bidder should give the following declaration while submitting the Quotation.

**DECLARATION**

I/we have not tampered/modified the quotation forms in any manner. In case, if the same is found to be tampered/modified, I/we understand that my/our quotation will be summarily rejected and full Earnest Money Deposit (EMD) will be forfeited and I/we am/are liable to be banned from doing business with NIT, Trichy and /or prosecuted.

**Signature of the Bidder** : .....

**Name and Designation** : .....

**Business Address** : .....  
.....  
.....

**Place :**

**Date :**

**Seal of the Bidder's Firm**

18. Any other details required may be obtained from the contact person given in the notice inviting quotation during the office hours.

## SECTION : 2 CONDITIONS OF CONTRACT

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1. The rates should be quoted in Indian Rupee FOR NIT, Trichy for supply within India.
2. In case of import both CIF and / or FOB rate should be quoted. All components of expenditure to arrive at Chennai need to be explicitly specified.
3. The bidder shall indicate the excise duty exemption for the goods if applicable
4. The Institute is eligible for customs duty and excise duty exemption.
5. The rate quoted should be on unit basis. Taxes and other charges should be quoted separately, considering exemptions if any.
6. Rate quoted should be inclusive of Testing, commissioning and installation of equipment and training.
7. **Payment**: No advance payment will be made. Payment will be made only after the supply of the item in good and satisfactory condition and receipt of performance security by supplier. In case of imports, the payment will be made through LC after installation and performance security need to be submitted at the time of LC commitment.
8. Guarantee and Warrantee period should be specified for the complete period conforming to the section 3 of this quotation document.
9. Period required for the supply and installation of item should be specified conforming to the section 3 of this quotation document.
10. In case of dispute, the matter will be subject to Tiruchirappalli, Tamil Nadu Jurisdiction only.

## SECTION : 3 SCHEDULE OF REQUIREMENTS, SPECIFICATIONS AND ALLIED DETAILS

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Name of the Component to be procured : Inverted Pendulum on a cart

### Specifications:

1. Pendulum & cart mechanical system
2. DC flat motor 12V, PWM controlled
3. Linear bearings
4. Interface and power supply unit
5. Interface unit: RT-DAC4 I/O internal PCI (or) external USB board
  - 16 multirange, multiplexed analog inputs, 12 bits resolution, 1.6  $\mu$ s conversion time, programmable gain, software & hardware triggered
  - 32 (8x4) bi-directional digital inputs/outputs LVTTTL standard.
  - 32 bits, 40 MHz counter
  - 4 PWM outputs
  - 4 incremental encoder inputs.
6. MATLAB/SIMULINK based control with a provision to implement any control algorithm
7. Setup Dimension: length – 2.2 m, height – 0.90 m
  - pole length – 0.5 m (adjustable)
  - rail length (cart base) - 2 m
  - DC motor - GPN9 (flat) 24V
  - Encoders = 2 Nos. (HEDM 5505)
  - timing belt with steel rope core
8. Power Interface: main 110 - 230 V, 50-60 Hz
  - channels: input: 2 encoders,
  - outputs: 1 PWM , 1 direction , 1 brake
  - Sample time: up to 0.001s with PCI I/O board
  - : up to 0.01s with USB I/O board

Quantity : 01

Any other details/requirement : The specifications provided above are mandatory.

Warranty period required : 3 years

Delivery schedule expected after release of purchase order (in weeks) : 6 to 10 weeks

EMD (in Rupees) : INR 5000

Performance Security to be given by Successful bidder after release of purchase order (in Rupees) : 5% of the equipment cost



**SECTION: 4 PRICE SCHEDULE**

[To be used by the bidder for submission of the bid]

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- 1. Component Name :
- 2. Specifications (confirming to Section 3 of Quotation document-enclose additional sheets if necessary) :
- 3. Currency and Unit Price :
- 4. Quantity :
- 5. Item cost (Sl.No.3 & Sl.No.4) (in Indian Rupee) :
- 6. Taxes and other charges :
  - (i) Specify the type of taxes and duties in percentages and also in figures
  - (ii) Specify other charges in figures :
- 7. Warranty period (confirming to the Section 3 of Quotation document. This should be mentioned in Technical bid also in order to get qualified for Financial bid) :
- 8. Delivery Schedule (confirming to the Section 3 of Quotation document) :
- 9. Name and address of the firm for placing purchase order :
- 10. Name and address of Indian authorized agent (in case of imports only) :

**Signature of the Bidder** : .....

**Name and Designation** : .....

**Business Address** : .....  
.....  
.....

**Place** :

**Date** :

**Seal of the Bidder's Firm**

**SECTION : 5 CONTRACT FORM**

[ To be provided by the bidder in the business letter head ]

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1. {Name of the Supplier's Firm) hereby abide to deliver the .....by the delivery schedule mentioned in the Section 3 quotation document for supply of the items if the purchase order is awarded.
2. The item will be supplied conforming to the specifications stated in the quotation document without any defect and deviations.
3. Warranty will be given for the period mentioned in the quotation document and service will be rendered to the satisfaction of NIT, Trichy during this period.

**Signature of the Bidder** : .....

**Name and Designation** : .....

**Business Address** : .....  
.....  
.....

**Place :**

**Date :**

**Seal of the Bidder's Firm**