

भारतीय प्रौद्योगिकी संस्थान ततरुपतत Indian Institute of Technology Tirupati Settipalli, Renigunta Road Tirupati 517506	दूरभाषसंख्या Phone no: 0877 – 2500335 ईमेल Email : govindak@iittp.ac.in
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Prof. T.S. Natarajan
 Registrar i/c

Date: 04.12.2017

Public Tender No: IITT/MECH/08/2017/09

Due Date: 26.12.2017 at 3.30PM

Dear Sir/Madam,

On behalf of the **Indian Institute of Technology TIRUPATI**, sealed quotations are invited in two part bid system for supply of the following Mechanical Engineering Equipment for **setting up of Mechanical Engineering Lab at IIT Campus near Merlapaka Village, Venkatagiri Road, YERPEDU Mandalam, Chittoor District, Andhra Pradesh.**

S.No.	Item description	Unit	Quantiy
1	Refrigeration trainer	No.	1
2	Air conditioning trainer module	No.	1
3	Du Nuoy Ring Tensiometer	No.	1
4	Data loggers	No.	3
5	Thermostatic baths	No.	2
6	Vacuum pumps	No.	3
7	Rheometer	No.	1

Specifications and compliance statement:

The detailed specifications of the equipment are given in the Annexure "A" and the compliance statement of specifications as per format (Annexure "B") enclosed must be filled in item wise and signed with seal. The deviations, if any from the tendered specifications should be clearly brought out in the statement. Technical literature/leaflet showing the compliance of the specification may also be attached with the quotation.

Please ensure that the specifications are basic essence of the product. It must be ensured that the offers must be strictly as per our specifications. At the same time it must be kept in mind that merely copying of our specifications in the quotation shall not make the parties eligible for consideration of the quotation. A quotation has to be supported with original catalogue (not of photo copy) of the quoted model duly signed by the principals and the same must be sent along with the technical bid. The quoted model should not become obsolete for a minimum period of 5 years (This is for the availability of spares). Therefore the model quoted should invariably be highlighted in the leaflet/literature enclosed with the quotation. Non-compliance of the above shall be treated as incomplete/ambiguous and the offer can be ignored without giving an opportunity for clarification/negotiation etc. to the bidder.

The eligibility criteria for participation in bid are mentioned below:

- a) The Bidder must be an Original Equipment Manufacturer (OEM) or his Authorized Dealer/ Channel Partner having a Direct Purchase and Support agreement with the OEM. In case, the Bidder is a Dealer, a valid LETTER OF AUTHORIZATION from Original Equipment Manufacturer should be produced along the bid.

Performance Certificate:

- a) The quoted system and accessories must have been supplied and installed at least one such similar system/equipment to any of the Central/State Govt./ PSUs/Universities/IITs/Autonomous bodies/any firm and proof of supply and its working condition in Mechanical Engineering Departments is a mandatory and must be produced along with the bid document.
 - b) The bidder should be willing to arrange for a demonstration of the equipment offered at free of charge on mutually agreeable place and date prior to opening of price bids to ascertain their conformity with tendered specifications.
1. Vendor shall possess ISO 9000 certification for Quality System implementation. Required evidence shall be provided along with offer.
 2. The technical bid shall be evaluated for acceptability by the technical committee and may call the tenderers for discussion. If necessary, the committee may modify the technical specification to suit the requirement of IIT Tirupati. In such case the opportunity shall be given to the participating bidders for submitting the revised bid as per modified specifications, if any.
 3. Bidder should be registered under **GST** Act with concerned State Sales Tax Authorities. The bidder should furnish along with the bid document, the relevant **GST** Registration Document and PAN / TAN copies.
 4. List of Present Clientele to whom identical or similar equipment supplied in the preceding three years must be produced with contact addresses & telephone numbers.

The supplier should quote commercially proven model of equipment or control system. Prototypes are not acceptable.

The above mentioned basic eligibility conditions are broad guidelines for pre-qualification and the Director/Registrar, in-charge, IIT Tirupati hereby reserves the right to relax / alter / modify / add any or all the conditions.

Delivery schedule: The total system should be supplied within 2 months from the date of receipt of Purchase Order and installation and commissioning should be completed within 20 days from the date of supply of equipment..

The interested bidders are advised to go through the conditions envisaged for eligible criteria for participation in the bidding.

Instructions to the Bidder

- (i) **Preparation of Bids:** The bidders must ensure that bids are submitted in **two part bid system (i.e.) Technical bid and Financial bid in separate envelopes.**
- (ii) **Techno-commercial bid:** The technical bid should consist of all technical details/brochures along with commercial terms and conditions super-scribed as TECHNICAL BID with Tender No. and date and time of closing and the bidder's name and address. No prices should be included in technical bid.
- (iii) **Financial (Price) Bid** should indicate item-wise prices for the items with firm and fixed figures and words super-scribed with the Tender No. and date of closing of the Tender with name of supply/work and the bidder's Name and address. The price bid should not contain any conditional clauses. No price escalation for any reasons whatsoever is allowed. All prices should be given in Indian Rupees or USD or Euros only. The Indian bidders shall quote firm price fully in Indian currency only.
- (iv) The technical and the financial bids duly signed by the bidders or their authorised signatories with name and seal should be put in separate cover and sealed. Both sealed covers should be put into a bigger cover duly super-scribed with PT No. and due date/time with name of supply /work. **Technical bids must either be spiral bound / stapled together. No loose sheets will be accepted. All pages must be numbered.**
- (v) **Submission of the tender:** The complete sealed bids in all respects shall be sent to the following address well in advance either by post or by courier so as to reach this office on or before the due date and time specified in the Schedule. The bids received after closing date and time shall not be considered.

The Registrar I/C,
Indian Institute of Technology Tirupati,
Renigunta Road,
Settipalli Post,
Tirupati-517 506, Andhra Pradesh

While submitting the bids, the bidders must sign all the tender documents as a token of accepting of tender documents as well as terms and conditions stipulated therein. Tender documents without signature of bidders or their authorised signatories will be treated as invalid bids.

No conditional offer or terms and conditions will be entertained by the institute and such bids will be treated as invalid.

(vi) The tender documents can be down loaded from IIT Tirupati web site:<http://iittp.ac.in/tenders> on or after 06.12.2017

(vii) **Bid Security (EMD):** *EMD either in the form of Bank Guarantee or Demand draft at 2% of the quoted value initially valid up-to 90 days drawn in favour of Indian Institute of Technology Tirupati payable at Tirupati must be sent along-with the technical bid only. The technical bid without EMD would be considered as UNSOLICITED and will be*

REJECTED. Photo/FAX copies of the Demand Draft/Banker's pay orders will not be accepted. No interest will be paid for the EMD and the EMD (Bid Security) will be refunded to the successful bidder on receipt of Performance Security (Security Deposit) and in case of unsuccessful bidders, the EMD will be refunded on finalisation of tender.

(viii) Bid security be forfeited without any intimation in such cases as below:-

- a) If a bidder withdraws its bid during the period of bid validity
- b) If a successful bidder fails to execute the awarded contract
- c) If a successful bidder fails to provide performance guarantee

(ix) Details of our Banker

Name of bank	State Bank of India
Address of bank branch	Settipalli Branch Renigunta Road, Tirupati
Bank Branch code	006677
IFS Code	SBIN0006677
Bank Account Number	35523338208

Modifications to bid:

- (x) The bidder shall make no modifications to the bids after the closing date unless specifically requested by IIT Tirupati. In case certain clarifications are sought by Institute after the opening of bid, then the reply of bidder should be restricted to the clarifications sought. Any bidder who modifies his bid having effect of altering the value of his offer after the closing date without specific reference by IIT Tirupati shall make him-self liable to be debarred from this tender and forfeit the bid security amount.

xi) Modifications of specification:

The supply to be made by the Supplier under this Purchase order can be modified or changed by the request from the IIT Tirupati provided that for such modifications or changes the parties shall first agree to possible addition or reduction in cost, the delivery date and such other terms and conditions occasioned by or resulting from such modification or change. Such agreement shall be effected either by way of exchange of letters duly signed by authorised representatives of the parties or by signed change order form or by minutes of meeting signed by authorised representatives of the parties, which shall constitute the necessary amendments to the contract. Possible increase or decrease in the contract price shall be calculated in accordance with unit prices. The cost of such additional jobs should be reasonably fixed with reference to the quoted price for such or similar items.

(xii) Opening of the tender: The Technical Bids will be opened by the tender committee duly constituted in the presence of bidders or their authorised representatives on 26.12.2017 at 16.00 hours. **The technical bid without EMD will not be entertained and treated as invalid bid.** Then the bids will be evaluated by the Technical Evaluation Committee which will decide the suitability of the technical bids as per our requirement

and terms and conditions. Once the technical evaluation is completed, the price Bids of only those bidders who are found technically acceptable will be opened in the presence of Authorized Representatives of such bidder(s), if any on a date and at a venue to be intimated by IIT Tirupati to the short listed bidders.

(xiii) The bidder shall note that any unsolicited post-tender reduction by them would disqualify them from participating from the bidding and forfeit the security bid.

(xiv) Incomplete bids are liable for rejection.

(xv) Prices: The price should be quoted on FOR: IIT, Tirupati. The bid should consist of basic price, P&F charges, freight, unloading charges, Installation and commissioning charges and applicable taxes.

The total landed cost will be calculated from the information provided by the bidder in their price bids. The bid conforming to the lowest cost would then be considered for award of contract.

(xvi) Annual Maintenance contract: AMC charges should be quoted separately for the equipment where-ever applicable which come into force after expiry of warranty/guarantee periods. The quote should contain details about free replacement of spares/accessories/software during the currency of AMC and number of break down calls shall be attended and duration of time required for attending to emergent calls and details of essential spares which are to be supplied on chargeable basis also need to be mentioned in the quote. IIT Tirupati reserves the right to conclude AMC at appropriate time after expiry of warranty period depending upon the requirement.

IIT Tirupati reserves the right to split and award item-wise contract to the lowest bidder.

The custom duty if any applicable must be shown separately. It may be noted that IIT Tirupati is exempted from payment of custom duty and duty at concessional rate against duty exemption will be paid.

In case of import supply, the price should be quoted on EX-WORKS/FOB/CIP basis indicating the mode of shipment.

Offer validity: The offer must be valid for 90 days from the closing date. If the validity of offers for acceptance is less than 90 days, the same will not be considered.

IIT Tirupati reserves the full right to accept / reject any tender or all tenderers at any stage without assigning any reason.

Yours sincerely,

Registrar, IIT Tirupati

Important Commercial terms and conditions:

- a) The due date for the submission of the tender is **26.12.2017 at 15.30 hours.**
- b) **Late offer:** The offers received after the due date and time of closing will not be considered. The Institute shall not be responsible for the late receipt of Tender on account of Postal, Courier or any other delay.
- c) **Performance Bank Guarantee:** Performance Bank guarantee for 5% of Purchase order value should be produced in the form of B.G from the nationalised /scheduled Bank valid till the completion of warranty / guarantee period plus sixty days as claim period. Where-ever installation/commissioning is involved, the guarantee/warranty period shall be reckoned from the date of completion of installation/commission. Failure to render contracted service during the warranty/guarantee period by the contractor, the performance bank guarantee will be forfeited. No interest is payable on the performance Bank guarantee amount.
- d) **Inspection Clause:** All major mechanical equipment will be inspected by a team of IIT Tirupati at Supplier's premises and after clearance in the form of report, the items shall be despatched to IIT Tirupati. Readiness of equipment shall need to be intimated well in advance for our inspection formalities.
- e) **Delivery Schedule:** Please note that delivery is the essence of the contract. In case there is any deviation in the delivery schedule, liquidated damages clause will be levied for the delayed period of supply. Therefore, it should be ensured that all the ordered items should be supplied within 2 months from the date of receipt of Purchase Order on door delivery basis at our Institute as per Purchase order terms with securely and sufficiently packed by following standard packing procedure to withstand transit damages. In case of import supply, the item should be delivered at the cost of supplier to our institution. The installation and commissioning should be completed as specified in our important terms and conditions.
- f) **Extension of time:** If the completion of stores is delayed due to reason of force majeure such as acts of God, acts of public enemy, acts of Government, fires, floods, epidemics, quarantine restriction, strikes etc., the contractor shall give notice within 15 days to Institute in writing of his claim for an extension of time. The Institute on receipt of such notice after verification, if necessary, may agree to extend the Contract delivery date as may be reasonable but without prejudice to other terms and conditions of the contract.
- g) **Liquidated damages:** If the Contractor fails to deliver the material within the time specified in the Contract or any extension thereof, the Institute shall recover from the Contractor as Liquidated Damages a sum of one-half of one per cent (0.5 per cent) of the Contract Price of the undelivered material for each

calendar week of delay. The total liquidated damages shall not exceed ten per cent (10%) of the Contract price of the unit or units so delayed. Stores will be deemed to have been delivered only when all their component parts are also delivered.

- h) **Guarantee/Warranty:** The Contractor shall guarantee that the material supplied shall comply fully with the specifications laid down, for material, workmanship and performance after acceptance of the material for a period of two years. The tenderer should clearly mention in the bid the period of guarantee/warranty offered by him. If any defects are discovered therein or any defects therein found to have developed under proper use arising from faulty stores design or workmanship, the Contractor shall remedy / replace such defective items at his own cost.

The Bidder should clearly categorize the Basic/Standard features as well as optional features of the system in order to have a clear cost comparison. Essential spares if any for maintenance to be quoted separately. The bidder should ensure continued supply of spares throughout the useful life of the equipment.

- b) **Insurance:** IIT Tirupati being a Central autonomous body under Ministry of HRD, Government of India, we will not insure our goods. However, to safe guard the ordered material from probable transit damage while in transportation the contractor may insure the goods at his risk and cost.
- c) **Payment terms:** No Advance payment will be made for Indigenous purchase. Our normal payment terms are 100% within 30 days after receipt of complete supply at our site and acceptance. However in case of high value Purchase Orders, as a special case, payment of 90% of Order value will be made based on pre-inspection of material at supplier's site and also on receipt of goods at our site and clearance by inspection team. Balance 10% of PO value after completion all inspection and acceptance formalities. For making payment original tax invoice in triplicate, Delivery Challan's, material test certificate, pre-inspection of material at factory, guarantee/warranty certificates must be sent along with material.

In case of import supplies, our normal terms of payment are by Sight Draft. However, other terms of payment such as Letter of Credit also considered as agreed upon by opening LC for 100% in which case 90% payment will be released against proof of shipping documents and balance 10% after successful installation wherever the installation is involved/on receipt and acceptance of material at our site.

- d) **Advance Payment:** No advance payment to indigenous supplies will be made. However in case of import goods, specific percentage of advance payment will be agreed upon for which, the Foreign Vendor has to submit a Bank Guarantee equal to the amount of advance payment and it should be routed through the Beneficiary Bank to the end user Bank. Otherwise, the Indian Agent of the foreign vendor has to submit a Bank Guarantee through a Nationalized Bank of India.

If an Indian agent is involved, the following documents must be enclosed:

Foreign principal's proforma invoice indicating the commission payable to the Indian Agent and nature of after-sales service to be rendered by the Indian Agent.

Copy of the agency agreement concluded with the foreign principal and the precise relationship between them and their mutual interest in the business.

Enlistment with DGS&D as Indian Agent of Foreign principals under the Compulsory Enlistment Scheme of Ministry of Finance.

- e) **Agency Commission:** Agency commission, if any, will be paid to the Indian agents in Rupees on receipt of the equipment and after satisfactory installation. Agency Commission will not be paid in foreign currency under any circumstances. The details should be explicitly shown in Tender even in the case of 'Nil' commission. The tenderer should indicate the percentage of agency commission to be paid to the Indian agent. The foreign Principal should indicate about the percentage of payment and it should be included in the originally quoted basic price, if any.
- f) **On-site erection and commissioning:** It is the responsibility of the Contractor to install and commission the equipment or machinery supplied by them within 20 days from the date of receipt of the item at site of IIT Tirupati and demonstrate the performance of the system to the satisfaction of the users/concerned faculty members/committee in-charge at IIT Tirupati. In case the Contractor fails to carry out the erection as and when called upon to do so within the specified period by the Institute, the Institute shall have the right to get the erection work done through any source of his choice. In such an event, the Contractor shall be liable to bear any additional expenditure that the Institute is liable to incur towards erection.
- g) **Training of End user:** The successful bidder shall provide comprehensive training at IIT Tirupati to IIT personnel on operation, programming, and maintenance at free of cost on all the items installed to the satisfaction of the IIT personnel. The expenses related to travel (to and fro) including local travel, stay, food and per diem and training have to be completely borne by the vendor.
- h) **Do not quote the optional items or additional items unless otherwise mentioned in the tender documents / specifications.**

ARBITRATION CLAUSE: Arbitration in the event of any dispute or difference arising under these terms & conditions or any Condition contained in the Purchase Order or in connection with this contract (except as to any matter the decision of which is specially provided for by these conditions), the same shall be referred to the sole arbitration of the Registrar, IIT, Tirupati or of some other person appointed by him and the dispute further processed in terms of the Arbitration & Conciliation Act, 1996. There will be no objection that the arbitrator is a Government Servant that he deal with matter which the Contract relates to or that in the course of his duties as Government Servant has expressed views on all or any of the matters in dispute or difference. The award of the arbitrator shall be final and binding on the parties of this Contract.

If the arbitrator is the Registrar, IIT, Tirupati

- i. In the event of his being transferred or vacating his office by resignation or otherwise , it shall be lawful for his successor in office either to proceed with the reference himself or to appoint another person as arbitrator, or
- ii. In the event of his being unwilling or unable to act for any reason, it shall be lawful for the Registrar, IIT, Tirupati to appoint another person as arbitrator.

If the arbitrator is a person appointed by the Registrar, IIT, Tirupati – In the event of his denying or neglecting or refusing to act, or resigning or being unable to act, for any reason, shall be lawful for the Registrar, IIT, Tirupati to proceed with the reference himself or to appoint another person as arbitrator in place of the outgoing arbitrator subject, as aforesaid , to the Arbitration & Conciliation Act ,1996, and the rules there-under and any statutory modifications thereof for the time being in force shall be deemed to apply to the arbitration proceeding under the clause. The Arbitrator shall have the power to extend with the consent of the purchaser and the contractor the time for making and publishing the award. The venue of Arbitration shall be the place as the purchaser in his absolute discretion may determine work under the Contract shall, if reasonably possible, continue during Arbitration Proceedings.

All amendments, time extension, clarifications etc., if any will be uploaded in the website only and will not be published in newspapers. Bidders should regularly visit the above website to keep themselves updated. No extension in the bid due date/ time shall be considered on account of delay in receipt of any document by mail.

- i) **Acknowledgement:** It is hereby acknowledged that the tenderer has gone through all the conditions mentioned above and agrees to abide by them.

**SIGNATURE OF TENDERER
ALONG WITH SEAL OF THE
COMPANY WITH DATE**

Specifications:

Refrigeration trainer:

- VCR refrigeration cycle
- Transparent evaporator and condensers for demonstrating the evaporation and condensation of refrigerant.
- Sensors for measuring the condenser and evaporator pressure and temperatures, water flow rates and inlet and outlet temperatures at condenser and evaporator, compression discharge temperature.
- All the sensors should have accuracy ± 1 % of the actual value.
- Temperature and pressure indicators.
- Low pressure and nontoxic refrigerant.
- Internal electrical and Mechanical safety devices for unsupervised safety operation.
- The instrument should be supplied with spares and accessories for two years of normal operation together with a full two-year warranty.
- The unit should also be supplied with experimental operating and maintenance manuals giving experiment results and sample calculation, which should be demonstrated at the time of installation.

Air-conditioning trainer module:

- Air-conditioning trainer with demonstration of all Air-conditioning processes like humidification, dehumidification, cooling, heating and a combination of these.
- Measurement of wet and dry bulb temperatures before and after each process to determine air properties. (Temperature sensor accuracy of $\pm 1^\circ\text{C}$)
- Air control and flow measurement sensors with accuracy of ± 1 % of the actual value.
- Instrumentation for conducting heat and mass balance for all air-conditioning processes.
- Provision for adding specified ratio of fresh air to recirculation air.
- Temperature and pressure indicators.
- Low pressure and nontoxic refrigerant.
- Internal electrical and Mechanical safety devices for unsupervised safety operation.

- The instrument should be supplied with spares and accessories for two years of normal operation together with a full two-year warranty.
- The unit should also be supplied with experimental operating and maintenance manuals giving experiment results and sample calculation, which should be demonstrated at the time of installation.

Du Nuoy Ring Tensiometer

A manually operated Du Nuoy ring type Tensiometer is required to measure the surface tension of a liquid or the Interfacial Tension between two immiscible liquids. The instrument should have following specifications and should be supplied with all necessary accessories for surface tension measurement.

Measurement range	0 to 90 mN/m or better
Accuracy	0.5 mN/m or better
Platinum rings	2 pcs
Accessories	Torsion wire: 2 Pcs, Pothook: 2 Pcs, Glass cup: 2 Pcs, Tool for adjusting distorted ring measuring probes, standard calibration fluid

Data Logger specification:

- Scanning speed : At least 200 Channel /Sec
- Number of connections : At least 50
- Measurement Parameters : Voltage (AC&DC), Resistance, Frequency, Temperature (All Sensors)
- Multi meter : At least 6.5 digit (Built in)
- Measuring range
- DC Voltage : 100 mV to 300 V or better
- AC Voltage : 100 mV to 300 V or better (With frequency 3 Hz to 300 Hz or better)
- Resistance : 100 Ω to 100 M Ω or better
- Temperature : RTD, thermistor and all Thermocouples (B, E, J, K, R, S, T) in full range with inbuilt cold junction compensation
- Mode of data transfer : LAN, USB, USB flash for data logging

Internal Memory	: 50,000 readings or better
Software compatibility	: Operating system – Windows, should store data in MS excel
Warranty	: Minimum 3 years

Thermostatic Bath Specifications:

Working temperature range	: -50 to 200°C or better
Temperature control	: ICC
Temperature stability	: $\pm 0.01^\circ\text{C}$ or better
Display	: VFD
Display resolution	: 0.01°C or better
Bath opening	: At least 100 mm (width)X 100 mm (length)
Bath depth	: At least 150 mm
Circulating pressure	: At least 0.5 bar
Flow rate	: At least 25 l/min
Filling volume	: At least 10 Liters
Working conditions	: Up to 40°C ambient temperature

Other Requirements:

External Pt100 sensor connection required
 Thermostatic oil should also be quoted for the filling volume (at least 10 Liters)
 Integrated programmer should be available
 Warning system for low liquid level
 Adjustable high temperature cutout, visible via display
 Digital interface is required

Vacuum Pump Specifications:

Type	: Rotary pump
Pumping speed	: at least $25 \text{ m}^3/\text{hr}$
Ultimate Pressure	: Minimum 10^{-3} mbar

Vacuum accessories like moisture trap, fore line trap, Inlet dist filters, exhaust oil mist eliminators, SS Belows, S.S. nozzle, Digital Pirani gauge with necessary connections, KF coupling with flange needed to be quoted along with pump.

Rheometer:

Auto Spindle recognition.

Should enable measurement of Absolute Viscosity, Yield Point, Rheological properties

Should allow controlled stress/controlled rate operation for comprehensive flow behaviour analysis

Auto spindle recognition, Enhanced position Optical Encoder

Spindle attachment should be simple for easy spindle replacement

Should have user friendly Touch screen with Graphical Display

Should come with software to control rheometer, acquire and analyse the data

Measurement accuracy $\pm 1\%$ of the reading.

Technical Specifications:

Viscosity Range:	0.001 to 800 K Pa.s or better
Shear Rate:	0 to 7000 per sec or better
Shear Stress:	0 to 20000 Pa or better
Torque:	0.05 to 75 mNm or better
Torque Resolution:	0.015 μ Nm or better
Temperature control bath :	0 to 200°C or better
Display units:	cP, Pa.s, dynes/cm ² , Pa, °C, °F

Compliance statement of Technical specifications:

specimen

S.No	Item description (Specifications of item)		
		Compliance to column (2) Yes/No	If No specify deviations explicitly
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			

Signature of the bidder with seal