



**NATIONAL INSTITUTE OF TECHNOLOGY
RAIPUR – 492 010, CHHATTISGARH**

**Advertised (Open) Tender Enquiry for Purchase of Lab Equipments for
Chemical Department**

Department: Chemical Engineering

Enquiry No: NITRR/S&P/CH/OT/2017/1509

Date: 19/09/2017

Important Dates

To

Event	Date	Time
Last Date of submission of quotation	11/10/2017	Up to 03:00PM
Technical bid Opening date	11/10/2017	At 03:30PM
Price (financial) bid Opening	To be Informed to technically successful bidder by mail and phone.	

Dear Sir,

We intend to purchase the commodities specified in this document and invite quotations in accordance with the terms and conditions detailed in the bid document. If you are interested, kindly send your offer with prices and complete terms within the time mentioned above.

Please send your quotation to:

REGISTRAR
NATIONAL INSTITUTE OF TECHNOLOGY RAIPUR
G. E. ROAD, RAIPUR – 492 010, CHHATTISGARH

Yours sincerely,

Registrar

National Institute of Technology,
Raipur

Enclosed:

- (1) Bid Document - Instruction to bidder - containing detail terms and conditions.
- (2) List of Equipment's/machines/commodity etc.- Annexure 1
- (3) Technical Specification – Annexure 2
- (4) Technical Compliance Format- Annexure 3
- (5) Price Bid Format in INR – Annexure 4
- (6) Price Bid Format in of imported items in currency other than INR -Annexure 5
- (7) Deviation statement form - Annexure 6
- (8) Bidder information & check list- Annexure 7

BID DOCUMENT**INSTRUCTION TO BIDDER**

1. Please go through the enclosed "bid document" carefully for other bidding instructions.
2. **IMPORTANT NOTE:** Being a Two-Part Tender (techno-commercial and price bid), fax quotations will not be accepted. Please ensure your offers are received on or before tender due date and time. Bidder/ Tenderer are requested to download the tender documents from our website (www.nitr.ac.in) and please submit the Demand Draft of Rs. 1000/- towards Tender fee not refundable (in favor of Director NIT Raipur, Demand Draft should not be dated prior to the date of advertisement. Separate request letter and separate Demand Draft shall be sent for each tender document.) in a separate cover along with a covering letter duly marked on the cover "Tender fee in respect of Tender No". please note carefully that;
 - **Quotations received without tender fee will not be considered.**
 - No request for extension of the due tender date will be considered.
 - In the event any date indicated above is declared as holiday, the next working day at Institute shall be considered as the due date for receiving & opening of tenders.
 - The bids shall be opened on date and time as mentioned above. The bidders may send their authorized representatives to attend the bid opening, if they so desire.
 - Bids received after the deadline of receipt indicated above, shall not be taken in to consideration.
3. The bid should remain valid for a period of **180 days** from the date of opening. In case your offer has a different validity period that should be clearly mentioned in the quotation. Validity period may also be extended without change in bid prices ,if required on mutually agreed basis only.
4. The bids may be drop in the Tender Box kept in the office of Registrar, NIT Raipur in normal working day that is Monday to Friday except holidays (from 11 AM to 5 PM) of the Institute. Please do not hand over the quotation to any person by hand.
Speed post/Registered Post and Other Courier Services is not acceptable.
5. **Clarification of bidding documents:** If a prospective bidder requires any clarification in regard to the bidding documents, they may mail to asstreg.str@nitr.ac.in at least 15 days before the deadline for receipt of bids.

6. Amendment of Bidding Documents

- o Corrigendum, if issued any for the tender, shall form part of the Tender Document. Corrigendum will be posted on NIT RAIPUR website (www.nitr.ac.in). Bidders/Tenderers are requested to visit NIT RAIPUR website regularly and note the corrigendum / amendments to the tender without fail and submit the offer accordingly. NIT RAIPUR will not be responsible for ignorance of corrigendum.
- o At any time prior to the deadline for submission of bids, the Institute may, for any reason, whether at its own initiative or in response to a clarification requested by a prospective Bidder/Tenderer, modify the bidding documents by amendment. The same would also be hosted on the website of the Institute and all prospective bidders/tenderer are expected to surf the website before submitting their bids to take cognizance of the amendments. Bidder/Tenderer who has submitted bids before publishing the amendment may revise their bid incorporating the amendments before the last date of tender.
- o In order to allow prospective Bidder/Tenderer's reasonable time in which to take the amendment into account in preparing their bids, the Institute, at its discretion, may extend the deadline for the submission of bids and host the changes on the website of the Institute.

7. **Custom duty:** The NIT Raipur have registration in Department of Scientific & Industrial Research(DSIR).

8. Bid Security (BS) / (Earnest Money/ EMD)

- I. The Bidder/Tenderer shall furnish, as part of its bid, a bid security (BS) of **3 % of gross bid value** has to be submitted as Bid Security (Earnest money Deposit/ EMD). **Gross bid value means F.O.R. NIT Raipur final price**
- II. In the case of foreign bidders/tenderers, the BS shall be submitted either by the principal or by the Indian agent and in the case of indigenous bidders/tenderers; the BS shall be submitted by the manufacturer or their specifically authorized dealer/Bidder/Tenderer.
- III. The bid security shall be in Indian Rupees. The bid security shall be in one of the following forms at the Bidder/Tenderers' option:
 - (a) A Banker's cheque or demand draft in favour of the Director, NIT Raipur.
 - (b) FDR in favour of the Director, NIT Raipur
- IV. The bid security should be submitted in its original form. Copies shall not be accepted.
- V. *Any bid without EMD or bid not secured in accordance with above will be rejected by the Institute as non- responsive.*
- VI. The bid security of unsuccessful Bidder/Tenderer will be discharged /returned as promptly as possible but not later than 30 days after the expiration of the period

of bid validity or placement of order whichever is later.

VII. The successful Bidder/Tenderer's bid security will be discharged upon the Bidder/Tenderer furnishing the performance security.

VIII. The firms registered with DGS&D & NSIC, if any, are exempted from payment of BS provided such registration includes the item they are offering which are manufactured by them and not for selling products manufactured by other companies.

IX. The bid security may be forfeited:

- (a) If a Bidder/Tenderer withdraws or amends or impairs or derogates its bid during the period of bid validity specified by the Bidder/Tenderer on the Bid Form; or

9. Sealing and Marking of Bids:

In a two bid system All Bidders/Tenderers are requested to follow carefully the following instructions before preparing their offer.

Part I: Technical & Commercial Bid

Part - (a) Technical

- i. This part should contain detailed specifications of the items quoted by you along with technical literature and leaflets.
- ii. A compliance statement showing the compliance of the item quoted by you with that of item tendered by us should be prepared and enclosed to this.
- iii. Any other information called for in the tender related technical and commercial specifications can also come in this part.
- iv. Prices should NOT be indicated in this cover.

Part - (b) Commercial terms: (WITHOUT PRICE)

- i. The commercial terms applicable for the items quoted by you should be indicated in this part.
- ii. If any compliance statement is called for the commercial terms/contractual terms and conditions, the same is to be attached in this part.
- iii. ***Prices should NOT be indicated in this part. However a copy of the price bid (without prices) must be enclosed in this part to enable to understand whether all the items required to be quoted by you have been quoted in the price bid.***
- iv. The Commercial terms such as delivery terms, delivery period, payment terms, Warranty, validity of the offer, installation & commissioning, duties and taxes etc., shall come into this.
- v. The required EMD should be enclosed.
- vi. The Tenderer/ bidder need to submit the following certificates along with the Tender Documents to confirm their eligibility in this part :
 - Proof of establishment of Firms/shop/business/ manufacturing unit etc. and Dealership certificate from the principals etc.
 - Proof of registration with any other central government organization (if any)

- Photocopies of purchase orders received from any central govt. organization to the firm (if any).
- Goods & Service Tax registration certificate should be enclosed
- The bidder should enclosed proof of turnover by way of Audited Balance Sheet/Auditor's certificate, if required.
- The bidder should Photocopy of PAN card issued un the name of the bidder's firm.

Note:

- Technical Specifications and terms & conditions as above should be very clearly reflected item-wise with reference to the items called for in the tender.
- Please note that the PRICE SHOULD NOT BE indicated in this part.
- Technical and Commercial part as described above shall be prepared and put it in a sealed cover.

Part II: Price Bid

The prices applicable for the items, item-wise in response to the tender shall come into this part in the prescribed format only. ***Bid will be rejected if rates are not quoted in the prescribed format.***

- i. Tenderer shall indicate very clearly item-wise prices with reference to their technical offer.
- ii. Price Bid prepared as above shall be enveloped and marked as follows:

The Technical & Commercial envelope (Part I) and Price cover (Part II) prepared as above along with 'Tender fee' which should be inserted in another envelope and marked as tender fee:

All envelop should be addressed to Registrar NIT RAIPUR and top of all envelop should be super scribed with (Tender No/ Department and due date of opening.). Part I: TECHNICAL BID with EMD & COMMERCIAL BID, Part II: PRICE BID should also be mentioned on respective envelop.

10. The bidders should quote their offer / rates in clear terms without ambiguity.
11. The rates should be quoted both in figures and words and legibly written without any over-writings. In case of any correction, the same must be attested by the bidder with full signature. However, no over-writing is permissible. Manufacturer's price-list, where applicable, should be submitted along with the bid.
12. In case of any discrepancy between the rates in figures and that in words, the rate in words will be accepted as correct.
13. Each bidder shall submit only one bid. A bidder, who submits more than one bid, shall be disqualified and considered non-responsive.
14. The bidder has to sign in full at all pages of the bidding document.

15. Bid Prices

- (i) The Bidder/Tenderer shall indicate **unit prices in the prescribed format only.**
- (ii) Prices indicated on the price-schedule form shall be entered separately in the following manner:
 - (a) **For Goods being offered from India/ abroad in INR**
 - (b) The price of the goods quoted should be FOR NIT RAIPUR inclusive of all taxes(GST, Custom etc), charges for inland transportation, insurance and other local services required for delivering the goods at the desired destination as specified in the price schedule form, installation, commissioning, training charges etc , if any. **(Annexure V)**
 - (b) **For Goods being offered from abroad in currency other than INR**
 - i. The price of the goods, quoted on FCA (named place delivery abroad) or FOB (named port of shipment), as specified in the price schedule form. The price should be FOR NIT RAIPUR inclusive of all taxes, charges for insurance and transportation of the goods, agency commission, installation, commissioning, training charges etc if any. **(Annexure VI]**
 - ii. The terms FOB, FCA, CIF, CIP etc. shall be governed by the rules prescribed in the current edition of the Incoterms published by the International Chambers of Commerce, Paris.
 - iii. Prices quoted by the Bidder/Tenderer shall be fixed during the Bidder/Tenderer's performance of the Contract and not subject to variation on any account.
 - iv. If at any stage of the price quoted GST applicable, it should be clearly mentioned.

16. Conditional discount, if any, offered by the bidder shall not be considered at the time of evaluation.

17. Responsiveness of Bids

- (i) Prior to the detailed evaluation, the Institute will determine the substantial responsiveness of each bid to the bidding documents. For purposes of this clause, a substantive responsive bid is one, which conforms to all terms and condition of the bidding documents without material deviations, reservations or omissions. A material deviation, reservation or omission is one that:
 - (a) affects in any substantial way the scope, quality, or performance of the Goods and Related Services specified in the Contract; or
 - (b) limits in any substantial way, inconsistent with the Bidding Documents, the Institute's rights or the Bidder/Tenderer's obligations under the Contract; or
 - (c) if rectified, would unfairly affect the competitive position of other bidders/tenderers presenting substantially responsive bids.

- (ii) The Institutes' determination of a bid's responsiveness is to be based on the contents of the bid itself without recourse to extrinsic evidence.
- (i) If a bid is not substantially responsive, it will be rejected by the Institute and will not subsequently be made responsive by the Bidder/Tenderer by correction of the material deviation, reservation or omission.

18. Evaluation and comparison of bids

- (i) The Purchaser shall evaluate each bid that has been determined, up to this stage of the evaluation, to be substantially responsive.
- (ii) To evaluate a Bid, the Purchaser shall only use all the factors, methodologies and criteria defined below. No other criteria or methodology shall be permitted.
- (iii) The bids shall be evaluated on the following basis which shall be arrived as under:

For goods being offered from India.

Goods price will be calculated FOR NIT Raipur. Lowest bid (L1) will be deciding by the price of the goods quoted should be FOR NIT RAIPUR inclusive of all taxes(GST & Custom Duty, etc), charges for inland transportation, installation, commissioning, training charges, insurance and other local services required if any for delivering the goods at the desired destination as specified in the price schedule Price Bid format

For goods being offered from Abroad

- (i) In case of goods being offered from abroad, Lowest bid (L1) will be decided based on total cost at NIT Raipur, that include basic price of goods, freight and Insurance up to Indian Airport/port (CIF/CIP value up to Indian airport/port), custom duty and other taxes as applicable etc., Inland transportation and insurance up to NIT Raipur, packaging, forwarding, agent commission for custom clearance and installation, commissioning and training charges if any.
- (ii) **Conversion to Single Currency:** To facilitate evaluation and comparison, Bids quoted in foreign currency will be converted into Indian Rupees at the selling exchange rate established by Reserve Bank of India on its website, on the date of price bid opening.
- (iii) In case charges for packing, forwarding, transportation inside India, custom clearance charges or other incidental charges are quoted extra in addition to the quoted rates, the amount thereof must be specified. Packing, forwarding, freight, entry tax etc., when quotes separately are reimbursable at actuals after production of original receipts/invoices. If external agencies are employed, their receipts must be enclosed with the invoice.

- (iv) *If vender wishes, he/they may alternatively, quote price of imported items in Indian rupees. In this case item may be treated as offered from India. Payment will be released accordingly.*

Note: *Where there is no mention of packing, forwarding, freight, transportation, insurance charges, taxes etc. such offers shall be REJECTED as incomplete.*

19. Clearance and delivery

On arrival of shipment/consignment, the supplier is required to arrange custom clearance and transportation of the consignment up to NIT RAIPUR premises. The Tenderer/ bidder will do all types of clearance work and **formalities to deliver/provide the equipment at the site of installation. The expenses incurred will be reimbursed on actual basis not exceeding the quoted amount.** Institute will provide all types of documentary support including Customs Duty exemption certificate. The custom duty, demurrage (in case of delay in release of custom duty to the custom department by NIT Raipur) and government taxes/levies (if any) will be paid extra by the buyer after as per term of payment. Please note that the State of Chhattisgarh may charge entry tax on all goods entering the State. This may be included in your quotation as a separate item. Entry Tax will be reimbursed on production of proof of payment. **Principals will themselves have to procure any requisite permission from the Govt. of country of origin of equipment.**

20. Agency Commission/other charges

Agency commission, if any, should be clearly mentioned by the Bidder/tenderer and will be paid in Indian Currency. Please note that actual reimbursement will not exceed the quoted amount in any circumstances.

21. The Institute reserves right to conduct pre-dispatch inspection of goods and the vender must facilitate it at NIT Raipur's cost for pre-dispatch inspection.

22. **Warranty Period:** The warranty period should be minimum **1 year** with spares or as mentioned in technical specifications (whichever is higher) from the date of installation with satisfactory performance as per specifications. For standard items which carry warranty of more than one year, standard warranty shall be applicable.

23. **Terms of Payment:** The method and conditions of payment to be made to the Supplier under this Contract shall be as follows:

(i) **Payment for Goods and Services offered from India:**

Payment for Goods and Services supplied from within India shall normally be made in Indian Rupees, as follows: 100% payment will be made in account payee cheque or Draft/ online Transfer using RTGS to the Supplier normally within thirty (30) days after the successful installation and commissioning of equipment's subject to submission of performance security, if any.

(ii) Payment for Goods and services offered from abroad:

Payment of foreign currency portion shall normally be made in the currency of contract in the following manner:

- a) **On Shipment:** Ninety (90) percent of the Contract Price of the Goods shipped shall be paid through irrevocable letter of credit (L/C) opened in favor of the Supplier in a bank in its country, upon submission of following documents specified as below:

Within 24 hours of dispatch, the supplier shall notify the purchaser the complete details of dispatch and also supply following documents by Registered Post/ courier and copies thereof by FAX.

- i. Two copies of supplier's Invoice giving full details of the goods including quantity, value, etc.;
- ii. Packing list;
- iii. Certificate of country of origin;
- iv. Manufacturer's guarantee and Inspection certificate/test report;
- v. Inspection certificate issued by the Purchaser's Inspector, if any.
- vi. Insurance Certificate, if required under the contract;
- vii. Name of the Vessel/Carrier;
- viii. Bill of Lading/Airway Bill;
- ix. Port of Loading;
Date of Shipment;
- x. Port of Discharge & expected date of arrival of goods and
- xi. H S code of classification of goods.
- xii. Any other document(s) as and when required in terms of the contract.

Note:

1. The nomenclature used for the item description in the invoices(s), packing list(s) and the delivery note(s) etc. should be identical to that used in the contract. The dispatch particulars including the name of the transporter should also be mentioned in the Invoice(s)
2. The above documents should be received by the Purchaser before arrival of the Goods and, if not received, the Supplier will be responsible for any consequent expenses.

- b) **On Acceptance:** Ten (10) percent of the Contract Price of Goods received shall be paid within thirty (30) days of receipt of the Goods and successful installation & commissioning upon submission of claim supported by the acceptance certificate issued by the Purchaser along with the Performance security, if any.

- The L/C will be confirmed at the suppliers cost, if requested specifically by the supplier. If L/C is requested to be extended/ reinstated for reasons not attributable to the purchaser, the charges thereof would be to the suppliers' account. All bank charges in India to the account of the opener and all bank charges outside India to the account of the beneficiary. Payment of local currency portion shall be made in Indian Rupees within thirty (30) days of presentation of claim supported by a certificate from the Purchaser declaring that the Goods have been delivered and that all other contracted Services have been performed. The L/C for 100% value of the contract

shall be established after deducting the agency commission payable, if any to the Indian agent from the CIF/CIP value.

24. **Performance Security (PS):** The successful bidder has to furnish "**Performance Security of 10% of the ordered value in Indian Rupee**", in the form of Account Payee Demand Draft, / Fixed deposit and/or unconditional Bank guarantee encashable on demand from the Director, NIT, Raipur, from a nationalized Bank with validity period of sixty (60) days beyond the date of completion of all contractual obligations of supplier including guarantee/ warranty obligations. The Performance Security is to be furnished in favor of the Director, National Institute of Technology, Raipur, within ten days of intimation, failing which his bid security will be forfeited.

The performance security will be discharged by the Purchaser and returned to the Supplier not later than 60 days following the date of completion of the Supplier's performance obligations, including any warranty obligations.

25. **Delivery period:** Delivery should be made within **150 days** from the date of order of placement of goods offered from India or opening of the LC in case of goods offered from abroad.
26. **The Insurance** shall be for an amount equal to 110% of the CIF or CIP value of the contract from within "warehouse to warehouse/installation site (NIT Raipur)" on "all risk basis" including strikes, riots and Chemistry commotion.
27. **Delayed delivery:** Maximum one month extension in delivery period may be given on the receipt of written request of the successful vendor; however liquidated damage at the rate of 5% per month or part thereof will be recovered from the firm of the value of undelivered goods. Request for extension in delivery period should be made before the last date of supply as mentioned in Purchase Order.
- Non delivery beyond extended period:** If the Tenderer fails to execute the order within the delivery period as mentioned above the order will be cancelled and EMD will be forfeited by the institute.
28. **Installation time:** The Company must install the equipment within a period of two months from the date of delivery of the equipment at NIT Raipur failing which order will be cancelled and EMD will be forfeited. However, necessary requirement for installation of goods/equipment will be provided by institute.
29. **Copy Right:** The copyright in all drawings, documents, and other materials containing data and information furnished to the Purchaser by the Supplier herein shall remain vested in the Supplier, or, if they are furnished to the Purchaser directly or through the Supplier by any third party, including suppliers of materials, the copyright in such materials shall remain vested in such third party.

30. Insurance:

- a. Should the purchaser elect to buy on CIF/CIP basis, the Goods supplied under the Contract shall be fully insured in Indian Rupees against any loss or damage incidental to manufacture or acquisition, transportation, storage and delivery.
- b. Where delivery of the goods is required by the purchaser on CIF or CIP basis the supplier shall arrange and pay for Cargo Insurance, naming the purchaser as beneficiary, initiate & pursue claims till settlement, on the event of any loss or damage.
- c. With a view to ensure that claims on insurance companies, if any, are lodged in time, the bidders and /or the Indian agent, if any, shall be responsible for follow up with their principals for ascertaining the dispatch details and informing the same to the Purchaser and he shall also liaise with the Purchaser to ascertain the arrival of the consignment after customs clearance so that immediately thereafter in his presence the consignment could be opened and the insurance claim be lodged, if required, without any loss of time. Any delay on the part of the bidder/Indian Agent would be viewed seriously and he shall be directly responsible for any loss sustained by the purchaser on the event of the delay.

31. Right to use Defective Goods: If after delivery, acceptance, installation and within the guarantee and warranty period, the operation or use of the goods proves to be unsatisfactory, the Purchaser shall have the right to continue to operate or use such goods until rectifications of defects, errors or omissions by repair or by partial or complete replacement is made without interfering with the Purchaser's operation.

32. Site preparation and installation: The Purchaser is solely responsible for the construction of the equipment sites in compliance with the technical and environmental specifications defined by the Supplier. The Purchase will designate the installation sites before the scheduled installation date to allow the Supplier to perform a site inspection to verify the appropriateness of the sites before the installation of the Equipment, if required. The supplier shall inform the purchaser about the site preparation, if any, needed for installation, of the goods at the purchaser's site immediately after notification of Award / Purchase Order / Agreement.

37. Force Majeure:

- (i) Notwithstanding the Clauses relating to extension of time, penalty and Termination for Default the Supplier shall not be liable for forfeiture of its performance security, liquidated damages or termination for default, if and to the extent that, its delay in performance or other failure to perform its obligations under the Contract is the result of an event of Force Majeure.

- (ii) For purposes of this Clause, "Force Majeure" means an event or situation beyond the control of the Supplier that is not foreseeable, is unavoidable, and its origin is not due to negligence or lack of care on the part of the Supplier. Such events may include, but not be limited to, acts of the Purchaser in its sovereign capacity, wars or revolutions, fires, floods, epidemics, quarantine restrictions, and freight embargoes.
- (iii) If a Force Majeure situation arises, the Supplier shall promptly notify the Purchaser in writing of such conditions and the cause thereof within 21 days of its occurrence. Unless otherwise directed by the Purchaser in writing, the Supplier shall continue to perform its obligations under the Contract as far as is reasonably practical, and shall seek all reasonable alternative means for performance not prevented by the Force Majeure event.
- (iv) If the performance in whole or in part or any obligations under the contract is prevented or delayed by any reason of force majeure for a period exceeding 60 days, either party may at its option terminate the contract without any financial repercussions on either side.

38. Defective Equipment:

- (i) If any of the equipment supplied by the Tenderer is found to be substandard, refurbished, unmerchantable or not in accordance with the description /specification or otherwise faulty, the institute will have the right to reject the equipment or its part. The prices of such equipment shall be refunded by the Tenderer with 18% interest if such payments for such equipment have already been made to him.
- (ii) All damaged or unapproved goods shall be returned at suppliers cost and risk and the incidental expenses incurred thereon shall be recovered from the supplier. Defective part in equipment, if found before installation and/or during warranty period, shall be replaced within 45 days on receipt of the intimation from this office at the cost and risk of supplier including all other charges.

39. Any disputes arising out of this enquiry shall be dealt in the Raipur jurisdiction.

40. Bidder has to sign all the pages of this tender and enclose it with the bid.

Registrar
NIT-Raipur

List of Annexure

1. List of Equipments – Annexure 1
2. Technical Specification of equipments/goods – Annexure 2
3. Technical Compliance of the bidder with reference to the 'Specification of Equipments :Annexure 3
4. Price Schedule for goods being offered from India - Annexure 4
5. Price Schedule for goods being offered from Abroad. - Annexure 5
6. Deviation statement form - Annexure 6
7. Bidder information & check list – Annexure 7

Annexure 1**List Of Equipments To Be Procured Under Tender**

Sr. No.	Name of Equipments	Quantity
1.	Lab Calorimeter	01
2.	UV-VIS Spectrophotometer	01
3.	Muffle Furnace with Inert Gas Facility	01
4.	Universal Process Control Trainer	01
5.	Steam Distillation Setup	01
6.	Membrane Bioreactor	01

Annexure 2

Technical Specification of equipments/goods

1. LAB CALORIMETER

Technical Specification

- Illuminating / Viewing geometry 8/d (8° illumination angle / diffuse viewing) SCI
- Measuring area Approx. 8 mm / 5 mm (Optional)
- Display modes $\Delta(L^*a^*b^*)/\Delta E^*ab$ or $\Delta(L^*C^*H^*)/\Delta E^*ab$
- Storable Data 1000 Nos
- Measuring range L^* : 1 to 100 / CR-10 L : 10 to 100
- Measurement conditions Observer: CIE 10° Standard Observer Illuminant: CIE Standard Illuminant D65
- Repeatability Standard deviation within ΔE^*ab 0.1 (When a white calibration plate is measured 30 times at 10 sec intervals after white calibration)
- Light Source Pulsed Xenon Lamp
- Power source AA-size batteries / AC Adapter / USB Bus
- Operating temperature / humidity range: 0 to 40°C; relative humidity 85% or less (at 35°C) with no condensation
- Computer and printer (Desktop Computer: 1 TB Hard Disk, i5 Processor, 19" Monitor, 4 GB RAM
Printer 3-in-1 LaserJet Printer)

2. UV-VIS SPECTROPHOTOMETER (PC CONTROLLED)

Technical Specification

High end Double Beam optics with holographic grating in Czerny-Turner mounting having versatile software package.

- Wavelength range : 190 – 900 nm
- Spectral Bandwidth : Continuous slit from 0.1 - 5 nm
- Detector : PMT
- Stray light : $\leq 0.01\%$ T (220 nm NaI, 340nm NaNo₂)
- Wavelength Accuracy : ± 0.3 nm (automatic wavelength correction)
- Wavelength Repeatability : ≤ 0.1 nm
- Photometric range : -4A ~ 4A
- Photometric Accuracy : ± 0.002 Abs (0-0.5Abs); ± 0.004 Abs (0.5-1.0Abs); $\pm 0.3\%$ T (0-100%T)
- Photometric Repeatability : ± 0.001 Abs (0-0.5 Abs); ± 0.002 Abs (0.5 – 1.0 Abs)
- Noise : ± 0.0004 Abs
- Drift : ≤ 0.0004 A/1h

- Baseline Flatness : 0.001A
- Communication Interface : USB
- High intensity Tungsten Halogen and Deuterium lamp with automatic changeover.
- Windows based software to control the complete UV-VIS Spectrophotometer. Built in Performance to comply with various methodologies like ASTM etc. for interpretation of measurement of results. Four key workspaces -- Spectral Analysis, Quantitative Analysis, Kinetic Analysis & Photometric Analysis to allow the user for complete spectrophotometer control, Data storage, Spectral overlay in 3D Display mode, create customized report templates,
- System to be offered with integrating sphere for diffused reflectance.

PC (500GB HDD, 4.0GB RAM, Monitor – 18.5” Wide screen LED Monitor) to operate the system, Printer (Deskjet Printer: Maximum print resolution: 4800 x 1200 dpi) and UPS (600 KVA).

Note: PO copy issued by IITs, NITs, CSIR labs, DRDO must be attached with quotation.

3. MUFFLE FURNACE WITH INERT GAS FACILITY

Technical Specification

(A) Muffle Furnace with Inert Gas Facility

- Inert gas facility : Flowing Nitrogen, Argon (cylinders to be provided)
- Working chamber size : 150×150×250mm (D×W×H) (or) near
- Maximum temperature : 1700 °C
- Working temperature : 1600°C
- Heating element : Silicon molybdenum rods (MoSi₂) (or) any suitable
- Refractory material : Alumina fiber (or) any suitable
- Heating rate : 20 °C/min
- Inert gas pressure gauge : Outside fitted with gas inlet port (or) suitable device for inert gas supply
- Thermocouple : B type (or) any suitable
- Temperature control : 16 segments
- program
- Temperature accuracy : ±1°C
- Temperature control way : Automatic PID adjusting
- Standard Accessories : High temperature gloves, Crucible tongs, Heat pad brick
- Warranty : 1 year from installation & Operating manual must be provided

Temperature calibration certificate to be attached

(B) Gas Cylinders (Nitrogen & Argon) and Regulator

- Gas Volume : 45 liters
- IS : Indian Standard Safety
- Capacity : 7 cubic meter
- Purity : 99%
- Pressure : 150bar
- Type of Gas : Argon , N₂
- Numbers Gas Cylinder : Each One
- Regulator : Double stage regulator

- | | |
|--------------------------|--------------------------|
| • Maximum inlet pressure | 300 bar |
| • Delivery Pr. Ranges | 10bar |
| • Body | Brass |
| • Bonnet | Die cast alloy |
| • Piston | Stain Steel |
| • Type Of Regulator | Argon , N ₂ , |
| • Numbers of Regulator | Each One |

Note: Controller of Explosive Certificate (CCE) for the gas cylinders to be attached

4. UNIVERSAL PROCESS CONTROL TRAINER

Technical Specification

- | | |
|----------------------------|---|
| • Type of control | DCS |
| • Control unit | Hybrid controller, 8 AI, 4AO, 16DI, 16DO, Control loops 8 |
| • Communication | RS232, RS485, Ethernet |
| • Software package | DCS: Hybrid Control Designer |
| • Temperature sensor | RTD, PT100, Range 0-100°C, 2Nos |
| • Temperature transmitter | PT100, Type 2 wire, Range 0-100°C, Output 4-20mA, 2Nos |
| • Flow transmitter | DPT, Type 2 wire, Range 0-200 mm H ₂ O, Output 4-20 mA, Sq. root |
| • Level transmitter | DPT, Type 2 wire, Range 0-500 mm H ₂ O, Output 4-20 mA, Linear |
| • Level transmitter | GPT, Type 2 wire, Range 0-600 mm H ₂ O, Output 4-20 mA |
| • Pressure transmitter | GPT, Type 2 wire, Range 0-2.5 bar, Output 4-20 mA |
| • Position transmitter | Type Electronic, 2 wire, O/P 4-20mA |
| • I/P converter | Input 4-20mA, Output 3-15 psig (2Nos) |
| • Heating control | Proportional power controller (SSR), Input 4-20 mA |
| • Heater | Type Electrical 2 coil, Capacity 3 KW |
| • Rotameter | 40-400LPH |
| • Solenoid valves | Type 2/2way normally closed, 1/4"BSP, water (2Nos) |
| • Control valve | Type: Pneumatic, Size:1/2", Input: 3-15psig, Linear & Equal % (2Nos) |
| • VFD | Input single phase 200VAC, 1.1A, output AC3 phase |
| • Pump | Fractional horse power, type centrifugal |
| • Diaphragm pump | Positive displacement Diaphragm pump, Cap 200Lph |
| • Compressor | 1 Hp, 3.8CFM, 10 kg/cm ² with 45 lit inbuilt tank receiver |
| • Computer (Minimum specs) | Intel (R) Core™ i7 processor, 4GB RAM, 19 inch Monitor, Optical mouse, Keyboard and 600VA UPS |

5. STEAM DISTILLATION SETUP

Technical Specification

- Distillation Vessel : Material Stainless Steel, Capacity 3 Ltrs. (approx.)
- Jacketed Type, insulated with ceramic wool and Aluminum cladding.
- Flow measurement: Rotameter for cold water.

- Steam Generator: Made of Stainless Steel, provided with Pressure Gauge & Level
- Indicator, Safety valve & insulated with ceramic wool and Aluminium cladding.
- Separating Chamber: Material Borosilicate Glass, Capacity 2 Ltrs. (approx.)
- Condenser: Material Stainless Steel, Shell & Tube type
- Distillate tank : Material Stainless Steel, Capacity 5 Ltrs. (approx.)
- Heater : Nichrome wire heater
- Temp. Sensors : RTD PT-100 type
- Control panel comprises of:
- Digital Temp. Controller : PID Controller, 0-199.9°C (For Steam Generator)
- Digital Temp. Indicator: 0-199.9°C, with multi-channel switch.
- With Standard make on/off switch, Mains Indicator etc.
- Instruction manual consisting of experimental procedures, block diagram etc.
- The whole set-up is well designed and arranged on a rigid structure painted with industrial PU Paint.

6. MEMBRANE BIOREACTOR

Technical Specification

1) Anoxic, bioreactor and membrane serration unit :-

- a) Material of Construction : SS304
- b) Total capacity of anoxic and bioreactor : 22 litres
- c) Working capacity : 20 litres
- d) Partitions in anoxic and bioreactor :-
 - i) Anoxic chamber: 11 litres, $L \times W \times H = 15 \times 15 \times 49$ CM
 - ii) Aerobic chamber: 11 litres, $L \times W \times H = 15 \times 15 \times 49$ CM
- e) Membrane chamber : 11 litre, $L \times W \times H = 15 \times 15 \times 49$ CM
- f) Nozzles / ports for the following :-
 - i) Feed
 - ii) Level switch
 - iii) Aeration
 - iv) Recycle
 - v) Effluent
 - vi) Drain
 - vii) Heater
 - viii) Temp. Sensor
 - ix) pH
 - x) DO

2) Feed system for bioreactor :-

- a) Feed reservoir :-
 - i) 25 litre plastic bin
- b) Feed pump :-
 - i) Variable speed peristaltic pump
 - ii) Capacity 0-5 l/h
 - iii) Connected to feed reservoir
- c) Level switch :-
 - i) High level switch
 - ii) Auto start-stop arrangement for feed pump

3) Internal recycle system for bioreactor :-

- a) Variable speed peristaltic pump
- b) Self calibrated to eliminate any additional external flow meter
- c) Capacity 0- 5 l/h

4) Aeration system for bioreactor :-

- a) Aerator
 - i) Oil-free mini air compressor, capacity 15 NLPM
- b) Air flow meter

- i) Rotameter with needle valve, range 0-15 NLPM
- c) Air sparger, (Standard Design Should be followed)
- 5) Auto temperature control system for bioreactor :-**
 - a) Sensor
 - i) RTD Pt-100 temperature sensor
 - b) Controller
 - i) Microprocessor-based digital temperature controller
 - c) Heating element
 - i) Immersion heater inserted into bioreactor
- 6) Membrane filter :-**
 - a) Type
 - i) Flat sheet microfiltration membrane
 - b) Dimensions
 - i) 100 mm effective filtration diameter
 - c) Filtration area
 - i) 0.008 m² effective filtration area
 - d) Micron rating
 - i) 0.2 micron
 - e) Material
 - i) Cellulose acetate
 - f) Affinity
 - i) Hydrophilic
 - g) Aeration in submerged membrane section should provided
- 7) Membrane filter housing :-**
 - a) Type
 - i) One side open housing for external pressure filtration
 - b) MOC
 - i) SS304
 - c) Gaskets
 - i) Silicon rubber
 - d) Exposed surface
 - i) 100 mm effective filtration diameter
 - e) Nozzle
 - i) For effluent removal under vacuum
 - f) Location
 - i) Immersed in aerobic chamber of bioreactor
 - g) Provision should be provided to use hollow fibber and tubular type membrane in place of flat sheet membrane
- 8) Backwashing control :-**
 - a) Absolute pressure transmitter
 - i) Range: -1 to 0 kg/cm²(g)
 - ii) Display : Digital
 - b) Pressure controller
 - i) High differential pressure cut-off for permeate (effluent) removal
 - ii) Vacuum side cut-off for backwashing
 - c) Timer
 - i) Digital on-off cyclic timer
 - ii) For controlling intermittent effluent withdrawal frequency
 - iii) For controlling intermittent backwashing frequency
- 9) Effluent removal system :-**
 - a) Variable speed peristaltic pump
 - b) Capacity upto 0-5 l/h
 - c) Bidirectional pump (clockwise & anticlockwise)
 - i) Single pump functions as both effluent removal pump as well as backwashing pump, by simply reversing the direction of flow
- 10) Effluent reservoir :-**
 - a) 25 litre plastic bin
- 11) Effluent flow rate monitoring system :-**
 - a) Rota meter should be provided to measure water
- 12) Control panel :-**
 - a) CRCA powder coated fabricated control panel box
 - b) With standard make on/off switch, mains indicator, etc.
- 13) Accessories & instruments :-**

- a) Tubing :-
 - i) One set of interconnecting flexible silicon tubing
 - b) Valves & fittings :-
 - i) One set of ball/needle valves at various locations, as per requirement
 - ii) One set of tube fittings as per requirement
- 14) Bench-top mounting :-**
- a) Whole set-up mounted on a powder coated base plate
 - b) Suitable for mounting on a laboratory bench
 - c) Dimensions 1200 x 700 mm (approx.)

Annexure 3**Technical Compliance of the bidder with reference to the
'Specification of Equipments'****Name and model no of offered goods/equipment:**

Item	Technical specification from NIT Raipur	Features available in equipments Yes or No	Any deviation from Specification, if any	Corresponding part number /datasheet/page no in broacher in support of specification	Comment of Technical Committee , NIT Raipur

Signature of Bidder

Annexure-4

Price Schedule form: Price Schedule for Goods Being Offered from India/Abroad in INR
(Separate form to be used for each item offered)

Name of the Bidder/Tenderer:

Name & Model No of offered good:

Tender No.:

S. No.	Details	Price per Unit in INR
1	Ex-works, Ex-warehouse, Ex-show room off the shelf price (inclusive of all taxes already paid)	
2	GST payable, if contract is awarded(.....%)	C.G.S.T.(.....%)
		S.G.S.T. (.....%)
		I.G.S.T. (.....%)
3	Packing & forwarding up to station of dispatch, if any	
4	Charges for inland transportation, insurance to ultimate destination i.e. NIT, Raipur, if any	
5	Installation, Commissioning and training Charges, If any	
6.	Any other charges (Please specify)	
Total Price (Sum of S.No 1 to 6) FOR NIT RAIPUR		

**** NIT Raipur have custom/exsices exemption certificate.**

Total Bid price in Indian currency_____

In words: _____

Name_____

Business Address

Note:

(a) The cost of optional items shall be indicated separately.

Signature of Bidder

Annexure-5

Price Schedule Form: Price schedule for goods being offered from abroad in currency other than INR

(Separate form to be used for each item offered)

Name of the Bidder/Tenderer:

Name & Model No of offered good:

Tender No.:

S. No.		Price per unit in ()
1	Country of origin	
2	FOB (named port of shipment) Or FCA (named place of delivery)	
3	Freight and Insurance up to Indian Airport/port	
4	Total Price at Indian Airport /port (2+3)	
5	**Custom charges (please mentioned %)	
6	Custom clearance and other charges if any (with breakup)	
7	Inland Charges for Insurance & transportation to NIT Raipur	
8	Installation, commissioning and training Charges, if any	
9	If any other charges (Please Specify)	
	Total Price (FOR NIT Raipur) (Sum of S. No 1 to 9)	

**** NIT Raipur have DSIR Registration Certificate.**

Note: Kindly mention GST if applicable at any stage under S.No. 9 of the above table.

Total Bid price in foreign currency: -----words: _____

(a) Indian agents name & address _____

(b) The cost of optional items shall be indicated separately-----

Annexure-6**DEVIATION STATEMENT FORM**

The following are the particulars of deviations from the requirements of the tender specifications:

CLAUSE	DEVIATION	REMARKS (INCLUDING JUSTIFICATION)

Signature of Bidder

Annexure-7(Please put this annexure at the top of the tender document)

Bidder's information & Check list

- 1. Name of the Firm:**
- 2. Type of the firm:** (Proprietorship, Pvt Ltd, Public Ltd, Partnership etc.)
- 3. Address of the firm:**
- 4. Contact detail:**

Phone No.:	Mob No. :
Fax No.	E mail:
- 5. Name of the authorised signatory:**
- 6. EMD detail : Instrument No.**
Date :
Issuing Bank name & branch detail:
- 7. Bank details of the firm:**

Account No.:	IFSC Code:
Name of the Bank:	Branch:

Check List(Please enclose the copy of the following & tick as per applicability)

- 1. Proof of registration of the firm:**
- 2. Authorisation certificate of delership:**
- 3. PAN card in Firm's name:**
- 4. GST Registration Certificate:**
- 5. Proof of registration with any central govt . organisation :**
- 6. Purchase orders issued by any central govt organisation.**

Signature of Bidder