

TENDER

FOR

SUPPLY & INSTALLATION OF ELECTROCHEMICAL  
WORKSTATION IN SCHOOL OF BASIC SCIENCE,

IIT MANDI



**Tender No.: IITMANDI/Admin/PUR-138/2014-15/7298-99**

**Tender date: 02<sup>nd</sup> February, 2015**

**Last Date of submission: 23rd February, 2015**

Indian Institute of Technology, Mandi

Transit Campus: Mandav Hotel, 2<sup>nd</sup> Floor (Near Bus Stand), Mandi – 175001 (H.P)

**Ph. No.** 01905-237933 **email:** [aditi@iitmandi.ac.in](mailto:aditi@iitmandi.ac.in)

Indian Institute of Technology Mandi, Mandi invites tender for supply, erection, installation, commissioning, testing, demonstration and training of **Electrochemical Workstation and accessories**, as per specifications given in the Annexure attached to the Tender form. All offers should be made in English and should be written in both figures and words. Tender forms can be downloaded from the website (<http://iitmandi.ac.in/administration/tenderseoi.html>) of the Institute.

The bidders are requested to read the tender document carefully and ensure compliance with all specifications/instructions herein. Non-compliance with specifications/instructions in this document may disqualify the bidders from the tender exercise. The Director, IIT Mandi, reserves the right to select the item (in single or multiple units) or to reject any quotation wholly or partly without assigning any reason. Incomplete tenders, amendments and additions to tender after opening or late tenders are liable to be ignored and rejected.

**Terms and Conditions:**

1. The technical and financial bids should be quoted separately and put in different sealed envelopes marked "**Technical bid**" or "**Financial bid**" as applicable. These separate bids envelopes are to be put in an outer envelope which should also be sealed.
2. The Vendors who have earlier supplied the equipment to any of the IITs, IISc, IISERs and other Scientific Institute of National Repute may only tender. The details of such institutions and the cost with name of equipment may also be supplied with the bids.
3. The technical and financial bids should be submitted in original. The financial bid should include the cost of main equipment/item and its accessories. If there is any separate cost for installation etc. that should be quoted separately.
4. Each individual sealed envelope as well as the outer envelope should be marked with the following reference on the top left hand corner: "**IITMANDI/Admin/PUR-138/2014-15/7298-99/Item Name.\_\_\_\_dated 02<sup>nd</sup> February, 2015**"
5. The printed literature and catalogue/brochure giving full technical details should be included with the technical bid to verify the specifications quoted in the tender. The bidders should submit copies of suitable documents in support of their reputation, credentials and past performance.
6. The rates should be quoted in figures (typed or printed) and cutting should be avoided. The final amount should be in figures as well as in words. If there are cuttings, they should be duly initialed, failing which the bids are liable to be rejected.
7. Any bids received after **01:00 P.M. on 23<sup>rd</sup> February, 2015** shall not be considered
8. The Technical Bids will be opened on **23<sup>rd</sup> February, 2015 at 03:00 P.M.** The date & time for opening of Financial Bids will be informed later on to the technically qualified bidders.
9. **While sending rates, the firm shall give an undertaking to the effect that "the terms/conditions mentioned in the enquiry letter/Tender Notice against which the rates are being given are acceptable to the firm." In case the firms do not give this undertaking, their rates will not be considered.**

10. If the supplier/firm is original equipment manufacturer (OEM)/authorized dealer/sole distributor of any item, the certificate to this effect should be attached.
11. The quantity shown against the item is approximate and may vary as per demand of the Institute at the time of placing order.
12. All tender documents should have to be sent through courier, speed post or registered post only. All tender documents received after the specified date and time shall not be considered.

The postal address for submitting the tenders is:

**“Assistant Registrar, Stores and Purchase”  
Indian Institute of Technology Mandi (IIT Mandi),  
Administrative Block (Mandav Hotel,  
Near Bus Stand), Mandi – 175001 (H.P), India”**

13. In the event of any dispute or difference(s) between the vendee Institute (IIT Mandi) and the vendor(s) arising out of non-supply of material or supplies not found according to specifications or any other cause whatsoever relating to the supply or purchase order before or after the supply has been executed, shall be referred to “The Director, IIT Mandi”, Mandi who may decide the matter himself or may appoint arbitrator(s) under the arbitration and conciliation Act,1996. The decision of the arbitrator shall be final and binding on both the parties.
14. The place of arbitration and the language to be used in arbitral proceedings shall be decided by the arbitrator.
15. All disputes shall be subject to Mandi Jurisdiction only.
16. All tenders in which any of the prescribed conditions is not fulfilled or any condition is putforth by the tenderer shall be summarily rejected.
17. The bidders or their authorized representatives may also be present during the opening of the Technical Bid, if they desire so, at their own expenses.

**Note:** Price bids of only those bidders will be opened whose technical bids are found suitable by the committee appointed for the purpose. Date and time of opening of price bids will be decided after technical bids have been evaluated by the committee. Information in this regard will be posted on Institute’s web site / Notice board. In exceptional situation, an authorized committee may negotiate price with the qualified bidder quoting the lowest price before awarding the contract.

**18. Clarifications:**

In case the bidders requires any clarification regarding the tender documents, they are requested to contact our office (e-mail: [aditi@iitmandi.ac.in](mailto:aditi@iitmandi.ac.in) & [arsp@iitmandi.ac.in](mailto:arsp@iitmandi.ac.in) on or **before20/02/2015**).

#### 19. **Tender Cost:**

A Demand draft of **Rs. 1,000/- (Rupees One Thousand only)** towards non-refundable **tender fee, drawn in favour of "The Registrar, IIT Mandi"** payable at Mandi should accompany the Technical bid documents. In the absence of tender cost, the tender will not be accepted.

#### 20. **Earnest Money Deposit (EMD):**

A refundable amount @ 2% of the quoted price as earnest money deposit (EMD) in the shape of DD from a scheduled bank in India (valid for a minimum period of 3 months from the date of opening of tender) should accompany the bid documents. The DD drawn in favour of "The Registrar, IIT Mandi" payable at Mandi should accompany the bid documents. The EMD should be kept in a separate sealed envelope, should be marked clearly and put in the outer envelope that contains the technical and financial bid envelopes. The bidders should enclose a pre-receipted bill for the EMD to enable us to return the EMD of unsuccessful bidders. Failure to deposit **Earnest Money** will lead to rejection of tender. The bidders should submit separate EMD.

#### 21. **Pre – Qualification Criteria:**

- a. Bidders should be the manufacturer / authorized dealer. Letter of Authorization from original equipment manufacturer (OEM) on the same and specific to the tender should be enclosed.
- b. The Vendors who have earlier supplied the equipment to any of the IITs, IISc, IISERs and other Scientific Institute of National Repute may only tender. The details of such institutions and the cost with name of equipment may also be supplied with the bids.
- c. An undertaking from the OEM is required stating that they would facilitate the bidder on a regular basis with technology/product updates and extend support for the warranty as well.
- d. OEM should be internationally reputed Branded Company.
- e. Non-compliance of tender terms, non-submission of required documents, lack of clarity of the specifications, contradiction between bidder specification and supporting documents etc. may lead to rejection of the bid.
- f. **Furnishing of wrong/ambiguous information in the compliance statement may lead to rejection of bid and further black listing of the bidder, if prima-facie it appears that the information in the compliance statement was given with a malafide/fraudulent intent.**

#### 22. **Prices:**

- a. The Prices quoted should be inclusive of all taxes or duties, packing, forwarding, freight, insurance, delivery and commissioning etc. at destination site (IIT Mandi, Mandi). IIT Mandi is registered with DSIR, Govt. of India and is exempted from Custom / Excise Duty. Exemption Certificate to this effect will be issued by IIT Mandi. **Hence, Customs/Excise Duty exempted price should be quoted.** The rates shall be firm and final. Nothing extra shall be paid on any account. **In the price bid/financial bid, the**

**vendor should clearly mention the final price breakup i.e. ex-work price/FCA price, FOB price, CIP/CIF price & FOR IIT Mandi, Kamand Campus price, as applicable in their bid.**

- b. In case of imported equipment(s)/item(s), the agency commission, if any, payable in Indian rupees should be mentioned separately. For imported equipment, the Letter of Credit will be opened for the amount excluding agency commission in Indian Rupees. The firm should clearly mention the address of foreign bank in the financial bid.

**23. Validity:**

The bid should be valid for acceptance up to a period of 180 Days. The Bidders should be ready to extend the validity, if required without any additional financial implications.

**24. Delivery:**

All the equipments are to be delivered at IIT Mandi, Kamand Campus, Kamand Mandi. The Equipment should be delivered and installed within the period as specified in the purchase order and be ready for use within 24 weeks of the issue of purchase order unless otherwise prescribed. If the bidder fails to deliver and place any or all the Equipments or perform the service by the specified date, penalty at the rate of 1% per week of the total order value subject to the maximum of 10% of total order value will be deducted.

**25. Training:**

Bidders need to provide adequate training to the nominated persons of IIT Mandi at their cost. IIT Mandi will not bear any training expenditure.

**26. Warranty Declaration:**

Bidders must give the comprehensive on-site warranty as required from the date of successful installation of Equipment against any manufacturing defects and also give the warranty declaration that *“everything to be supplied by us hereunder shall be free from all defects and faults in material, workmanship and shall be of the highest quality and material of the type ordered, shall be in full conformity with the specification and shall be complete enough to carry out the experiments, as specified in the tender document.*

Any deviation in the material, and the specifications from the accepted terms may liable to be rejected and the bidders need to supply all the goods in the specified form to the satisfaction / specifications specified in the order / contract and demonstrate at their own cost.

- 27. Performance Bank Guarantee:** A performance bank guarantee from a scheduled bank in India for an amount equal to 10% of the price for duration of two months beyond the expiry of warranty period will be taken from the supplier or Indian agent.

- 28. Terms of Payment:** Payment will generally be made only after delivery and satisfactory installation, testing, commissioning etc. **This must be specified in the tender/quotation.**

- In case of imported supplies, payment (excluding Indian agency commission, if any) will be made through irrecoverable Letter of Credit in two installments. 80 % of the money will be released on submission of shipping of documents. Remaining 20 % will be released after

successful installation of the instrument and submission of a performance bank guarantee for 10% of the order value from a nationalized bank, valid for 2 months beyond the expiry of the warranty.

29. **Tender expenses and documents:** All costs incurred by the bidder in the preparation of the tender shall be at the entire expense of the bidder.
30. **Tender Evaluation Criteria:** The technical bids will be opened and evaluated by a duly constituted committee. After evaluation of the technical bid, the financial bid for only those offers which have qualified in the evaluation of technical bid will be opened.
31. **Return of EMD:**
  - The earnest money of unsuccessful bidders will be returned to them without any interest within 30 working days after awarding the contract.
  - The earnest money of the successful bidder will be returned to them without any interest within 30 Days after supply of material.
32. **Manual and documentation:** All the manuals necessary for operating and servicing the equipment (including details of electronic circuits) will have to be provided along with the instrument.
33. Bidders should go through the tender terms, conditions and specifications carefully and fill in the attached compliance statement accurately and unambiguously. They should ensure that all the required documents are furnished along with the bid.

Sd/-  
**Assistant Registrar  
Stores & Purchase**

## BID PARTICULARS

1. Name of the Supplier :

2. Address of the Supplier :

3. Availability of demonstration of equipment : Yes / No

4. Tender cost enclosed: : Yes/No if yes

D.D. No. \_\_\_\_\_ Bank \_\_\_\_\_ Amount \_\_\_\_\_

5. EMD enclosed : Yes / No if Yes

D.D. No. \_\_\_\_\_ Bank \_\_\_\_\_

6. Name and address of the Officer/contact person to whom all references shall be made regarding this tender enquiry.

Name :

Address :

Telephone No. :

Fax No. :

Mobile No :

e-Mail :

Web

# Annexure 1

**NIT Ref. No.:- IITMANDI/Admin/PUR-138/2014-15/ Electrochemical Workstation with accessories.**

## **Technical Specification for “Electrochemical Workstation”**

IIT Mandi requires an electrochemical workstation with **Frequency Response Analyzer module** and **Bipot module** . **This electrochemical workstation will be couple with rotating ring disk electrode and other accessories to perform the hydrodynamic studies on the catalysts.**

The equipment should be capable of

- A. Performing voltammetric and potentiometric measurements.
- B. Will be having Frequency Response Analyzer and bipot module.
- C. Will be coupled with rotating ring disc electrode for reaction kinetic studies
- D. Performing fuel cell and electrolyzer measurements.

**Electrochemical Workstation with Frequency Response Analyzer module and Bipot module .**

### **1. Specifications:**

Compliance voltage:  $\pm 30$  V or better at  $\pm 2$ A without booster.

Maximum Output Current:  $\pm 2$  A or better at  $\pm 30$  V

Output Voltage Range:  $\pm 10$  V

Current Ranges smallest current range:  $\pm 10$  nA to current range 1A in nine ranges

Resolution of applied potential:  $160 \mu\text{V}$

Resolution of measured potential:  $0.4 \mu\text{V}$

Accuracy of applied current:  $\pm 0.2$  % of the current range

Measured current resolution: 30 fA on 10 nA full scale range

Potentiostat Rise/fall Time: 250 ns or lower

Gain bandwidth range of amplifier: 1 MHz

Bandwidth of electrometer:  $> 4$  MHz

Interface: USB interface for connection with PC

Input bias current:  $< 1$  pA

Input Impedance of electrometer:  $> 1\text{T } \Omega$  //  $8$  pF

Input ac amplitude: 0.5 mV to  $300 \text{ mV}_{\text{rms}}$  or better

### **2. Frequency Response Analyzer module**

FRA module and software for EIS measurements Module for EIS measurements with the FRA32M module in potentiostatic and galvanostatic control, over a wide frequency range of 10  $\mu\text{Hz}$  to 1 MHz. Apart from the classical EIS, it should be possible to modulate other outside signals such as rotation speed of a rotating disk electrode or the intensity of a light source to perform Electro-hydrodynamic or Photo-modulated impedance spectroscopy. It should be supplied with powerful fit and simulation software for the analysis of impedance data. Frequency range 10  $\mu\text{Hz}$  - 30 MHz, Frequency range in 10  $\mu\text{Hz}$  - 1 MHz combination with PGSTAT. Frequency resolution 0.003%, Input range  $\pm 10$  V, Signal types 1 sine, 5 sine, 15 sine, Input channels E and I from the potentiostat/galvanostat or X and Y external signals, AC amplitude 0.25 mV to  $0.30 \text{ V}_{\text{rms}}$  in potentiostatic mode, 3 mV to  $3.2 \text{ V}_{\text{rms}}$  (optional) extendable to 0.0002 - 0.3 times current range in galvanostatic mode. Data presentation: Nyquist, Bode, Admittance, Dielectric, Mott-Schottky, Data analysis: Fit and Simulation, Find circle, Element subtraction, Kramers-Kronig,



### 3. BIPOT module

True Bipotentiostat Module for conversion of the system into a two channel potentiostat with two working electrodes sharing the same AE & RE. Specifications: Potential Offset Range:  $\pm 10$  V, Maximum Current 50 mA, Current Range: 10 mA, 1 mA, 100  $\mu$ A, 10  $\mu$ A, 1  $\mu$ A, 100 nA & 10 nA. Modes: Bipotentiostat, Scanning Bipotentiostat.

### 4. Electrochemical Software:

Software should have facility to record additional signal viz EQCM, bi-potentiostat etc. Import/export ASCII.

Ready-to-use Vis & Generic interface for .Net applications should be included. It should have facility to display up to 4 plots simultaneously. Comparison with previous experiments should be possible while experiments are in progress. The software should support following basic electrochemical measurements: Cyclic Voltammetry with scan rates from 10  $\mu$ V/Sec to 200V/Sec, Sampled DC Voltammetry, Tafel Plots, Differential Pulse Voltammetry, Square Wave Voltammetry. Electrochemical methods like Chrono-Amperometry, Chrono-Coulometry & Chrono-Potentiometry.

**5. Other Accessories.** Branded compatible PC , Printer ,2 KVA online UPS with one hour back up should be quoted

**6. Optional Accessories.** The instrument must have option to attach these accessories and should be quoted as optional items.

#### (1) Current Booster 20A module

Current booster to enhance the maximum current of the system. Specifications: Max Compliance Voltage:  $\pm 20$  Volts, Maximum Output Potential:  $\pm 10$  Volts, Maximum Current:  $\pm 20$  Amp, Accuracy:  $\pm 0.2\%$ , Operation Mode: Potentiostatic and Galvanostatic.

#### (2) Electrochemistry Cell :

It should consist of the following:

50 mL Glass cell 1no, 50 mL glass thermostat table glass vessel 1 no. 3mm diameter GC ,Pt ,Au disc working electrode 1no(it should be possible to use these tips as RDE tips as well), Pt wire Counter electrode 1 mm dia 5 mm length 1 no, Ag/AgCl reference electrode (Aqueous) & Ag/AgCl reference electrode (Non-Aqueous) 1 no each. Suitable Lid for the cell and purge tube with valve.

### 7. Others

H1. Vendor should provide the standard samples for testing the instruments at the time of installation at site for the demonstration of the performance of equipment.

H2. Manual – technical aspects with service details (electronic and hard copy)

H3. Details of the standard samples to be provided by the company for testing the instruments at the time of installation at site for the demonstration of the performance of equipment

H4. Installation – The satisfactory installation to the full specifications of the machine with all accessories at IIT Mandi campus. Any additional equipment/accessory for the installation of the system should be quoted invariably. IIT Mandi will provide only space and electrical connection.

H5. Training – Free training to IIT Mandi operators and students/staffs to the satisfaction of IIT Mandi.

H6. Warranty – 3 year on-site warranty (give details including scope, no. of visits, etc). Any part(s) that are not covered under warranty should be mentioned clearly.

H7. The vendor should **specify the power requirements for all the components in the technical quotation.**

H8. **Tools** and Spare part for smooth functioning of the machine for 3-5 years.

### **8. Guarantee / Warranty and after sales technical support**

The tender must be quoted with three years on-site comprehensive Warrant/Guarantee commencing from the date of complete and satisfactory installation of the equipment against the defect of any manufacturing, workmanship and poor quality of the components. The bidder also must agree and issue a certificate stating that technical query will be responded within 5 working days and the support will be provided within 15 working days from the date of reporting of the technical failure for down time free operation of the instrument.

### **9. Note:**

- A. Operation and service manual in English (electronic and hard copy) should be provided with all the equipments.
- B. In the technical details, specify clearly about the kind of service/maintenance required for the system. Also mention that whether the service has to be carried out by a company engineer or it can be carried by trained service personnel within India.
- C. The complete training of all measurement options should be Free for IIT Mandi user staff/students members, onsite.
- D. Enclose pre-installation guide for the details on electrical power, space and other for all components and essential accessories.
- E. Bid should include all other essential auxiliary equipment and spares for its operation (please provide list with the details).
- F. All sample handling tool-kits/consumables also should be provided. Wherever, consumables and other items required to handle the system while operating all measurement options, must be quoted separately for enough quantity.
- G. Quote separately for all optional items/accessories, optical components and consumables which are not explicitly specified above however required for smooth functioning of the machines.
- H. A list of institutes (with details) in India where the similar equipment (with all options in this tender) has been sold or is under operation should be provided. Prospective vendor should clearly mention the type of measurement options (along with the main system) supplied to these institutes.
- I. The manufacturer has to stand guarantee for the relocation of the system from the present campus of IIT Mandi (at Kamand), to another campus of IIT Mandi (about 3 km) when it gets ready. They must be in a position to dismantle the setup in the present campus and re-install it to the new campus.

**Compliance statement for the tender  
specifications**  
**INDIAN INSTITUTE OF TECHNOLOGY MANDI**  
**HIMACHAL PRADESH-175001**

Ref:-ENQUIRY NO:- **IITMANDI/Admin/PUR-138/2014-15/ Electrochemical Workstation with accessories.**

**Instructions**

1. You have to fill in all columns and ensure that you furnish all the required information accurately and unambiguously.
2. If our specification contains any values, you have to provide your values against the column in the same unit as we have specified.
3. Deviation in values, materials etc. from our specification may be explained in the remarks column

<b>S. NO</b>	<b>Check list of documents/ Undertakings ?</b>	<b>YES/NO</b>	<b>Remarks (Give explanation if answer is No)</b>
1	Is Tender fees attached?		
2	Is EMD attached? (if applicable)		
3	Is the bidder original equipment manufacturer (OEM)/authorised dealer?		
4	If authorised dealer, recent dated certificate to this effect from OEM, attached or not?		
5	Undertaking from OEM regarding technical support & extended warranty period		
6	Validity of 180 days or not?		
7	Undertaking from bidder regarding acceptance of tender terms & conditions		
8	Whether list of reputed users (along with telephone numbers of contact persons) for the past three years specific to the instrument attached.		
9	Whether special educational discount for Indian Institute of Technology (IIT) Mandi (H.P) given.		
10	Whether two weeks training of operator and research students without any charges offered.		
11	<b>Does the instrument complies with all the specifications from S.no. 1 to 9. Attach a separate sheet showing compliance with the specifications and explanations thereto if the equipments varies from the requested specifications.</b>		
12	Whether free Installation, Commissioning and Application Training offered.		
13	Whether Three years comprehensive onsite extended warranty offered.		
14	Whether Annual maintenance after expiry of comprehensive onsite warranty quoted separately as optional.		