

**BHARATHIAR UNIVERSITY : COIMBATORE 641 046**

**TENDER NOTICE**

**Ref.No. C7/Physics/ DST-SERB/101/2021**

**Date. 17.09.2021**

Sealed Tenders are invited by the Registrar, Bharathiar University, Coimbatore 641 046 up to 3.00 P.M **on 11.10.2021 (Separate Technical and Commercial bid)** from the reputed **firms for the supply of Electrochemical Workstation to the DST-SERB Project, Dept.of Physics**

<p><b>TENDER COST: Rs. 1,575/- EMD: Rs.20,000/-</b> <b>LAST DATE FOR SUBMISSION OF TENDERS: 11.10.2021 up to 3.00P.M.</b> <b>TECHNICAL BIDS OPENING DATE :11.10.2021 at 4.00 P.M.</b></p>
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The tender documents can be can be downloaded from our website [www.b-u.ac.in](http://www.b-u.ac.in) from 18.09.2021 to 11.10.2021.

**REGISTRAR i/c**  
**BHARATHIAR UNIVERSITY**

**BHARATHIAR UNIVERSITY –COIMBATORE 641 046**

**TENDER TERMS AND CONDITIONS**

1. Sealed Tenders will be received by the **Registrar, Bharathiar University from the reputed firms up to 3.00 p.m. on 11.10.2021** for the supply and installation of **Electrochemical Workstation under DST-SERB Project, Dept.of Physics as specified in the schedule (Appendix)** .
2. Tender should be addressed to the Registrar, Bharathiar University and should be only in sealed covers by Registered post/ or in person. Tenders received in ordinary covers without seal will not be considered.
3. The tender cover with **Ref. No. should be superscribed as “Tender for the supply and installation of Electrochemical Workstation under DST-SERB Project, Dept.of Physics . Due on 11.10.2021**The covers received without such superscription will be rejected summarily. All covers containing the tender should be sealed. Separate sealed covers should be used for technical and price bid and please be superscribed on the cover .
4. **Technical Bids will be opened on 11.10.2021 at 4.00 p.m. by the Registrar or his/her nominee in the presence of the tenderers** or their representatives may be present at the time of opening. The representatives of the tendering firms who attends during opening of the tenders must produce their identification proof and authorization letter from the tendering firms

If the tenderers are unable to participate at the time of tender opening kindly be informed to the Registrar through mail **purchasesection4@gmail.com**

**Price bids will be opened after technical evaluation of bids which will be informed later.**

5. The tender shall be accompanied with the requisite Tender Cost of **Rs.1,575/- and EMD of Rs.20,000/-** in the form of DD drawn in one of the Nationalized Banks in the name of “Registrar, Bharathiar University” payable at Coimbatore. Bank Guarantees will not be accepted.
6. Tenders without EMD shall be summarily rejected. EMD will not carry any interest. If tenderers specifically exempted by the Government from the payment of earnest money deposit /tender cost necessary certificate (SSI, NSIC) in respect of the item for which the registration certificate has been obtained .
7. **The University is not be responsible for any postal delay in receipt of tender. Delayed/Late bids will not be accepted at any circumstances. Any tender received after the due date will be returned to the tenderer**
8. The tender shall be valid for a **maximum period of 180 days** from the date of opening of the tender in acceptance. If the tender validity is less than **180 days** the tender will be rejected as non-responsive tender. Tenderer should not withdraw his tender after the tenders are opened. In case the tender is withdrawn after it opened, the EMD will be forfeited and black listed.
9. **Faxed bids will be rejected.**

**10) The initial examination shall consider the following factors, namely:-**

- (a) Whether the tenderer meets the eligibility criteria laid down in the tender documents;
- (b) Whether the tender documents each page have been duly signed;
- (c) Whether the requisite Earnest Money Deposit (EMD) with appropriate validity has been furnished;
- (d) Whether the tender is substantially responsive to the technical specifications and commercial conditions set out in the tender documents.
- e) Tenders which on initial examination are found not to be substantially responsive under any of the above clauses shall be rejected for further scrutiny.

**11). TECHNICAL BID –Evaluation - Eligibility Criteria**

**The bidders must fulfil the following eligibility conditions and also submit the documentary evidence in support of fulfilling these conditions while submitting the technical bid**

- a. The brief description of the equipment with make and model
- b. A tenderer should be a manufacturer possessing a valid manufacturing license from the competent authority for manufacturing the items. (Documentary evidence to be furnished)
- c. Authorized Dealer can also bid with authorization letter from the Principal Manufacturer of OEM for the proposed equipment who has supplied in India over the past three years. (Documentary evidence to be furnished).
- d. **A manufacturer shall not authorize more than one dealer / distributor** for participating in this tender.
- e. In case a tenderer is participating as an authorized Dealer/Distributor the manufacturer of the item should satisfy the conditions mentioned at (b) and (c) above
- f. The Copy of the GST Registration Certificate and Copy of PAN
- g. The annual turnover of the bidder for the last three financial years
- h. The tenderer submitting their offer must have supplied and installed of similar nature of the item most preferably orders received for previous two/three years from Govt department/ Institutions/ University/Govt undertaking/ organizations (documentary evidence to be closed)
- i. The tenderer should not have been blacklisted or debarred from participating in tenders by any Central/State Government agencies or autonomous bodies or universities/ institutions. (An undertaking to this effect should be furnished)

**12) The bidders who fulfil the eligibility criteria laid down will be considered for technical valuation. The price bid of the technically qualified bidders will be opened for negotiation**

**13) PRICE BID :** Price shall be quoted as per the format given in Appendix-.

The tenderer shall not carry out any alteration in the format prescribed for Price Bid. The tenderer shall not enclose any other document or statement that will influence the price. In such an event, the tender inviting authority shall summarily reject the tender.

**Imported :** The tenderer shall quote the price in currency for **CIP Chennai /FOR Coimbatore inclusive of all other charges** (break up details necessary) up to the destination and should be indicated clearly both in words and figures.

**Indigenous:** the tenderer shall quote the basic price inc of GST and warranty. No separate charges for warranty period will be considered

Any scoring or overwriting in the price bid should be attested by the bidder with full signature. The rate quoted should be firm and should not be subject to any variation clauses. University shall not pay any increase in duties, taxes and surcharges on account of any revision by the Govt after allotment /issue of work order / at the time of supply.

**14) Price bid evaluation will be done for imported inclusive of the customs duty. For indigenous inclusive of GST.**

**15) THE EMD IS LIABLE TO BE FORFEITED :**

- i) If the Tenderer withdraws his tender after the tenders are opened., the EMD will be forfeited and black listed.
- ii) If the successful tenderer fails to furnish the required security deposit or the agreement, within the stipulated time limit
- iii) The EMD of the unsuccessful tenders will be refunded immediately after the tenders are disposed of by the competent authority.

**16) PERFORMANCE SECURITY :**

- i. Successful tenderer has to furnish Security Deposit equivalent to 5.5% of the ordered value either in form of Demand Draft drawn in favour of “The Registrar” Bharathiar University payable at Coimbatore
- ii. The EMD of the Successful Bidder will be adjusted towards Security Deposit (SD). (Security Deposit will be released only after the expiry of the warranty period .

**17) PAYMENT**

**Imported:** 100% payment will be made through irrevocable letter of credit in favour of the Principal Supplier (OR) Currency wire transfer after supply in favour of the Principal supplier. Advance payment is not applicable

**Indigenous:** The payment will be made only after supply and installation of the equipment either by Cheque or RTGs

The commissioning and installation should be completed within the stipulated period mentioned in the supply order. If the supply is not made within the period, the supply order will be cancelled and the EMD & Security deposit will be forfeited.

**18) CUSTOMS DUTY & TAXES :**

**Imported :**

The equipment purchased is for Research and Development activities. University is registered with DSIR and exempted from customs duty for all research equipments as per the Government Notification No: 51/ 96 Customs Dt.23.7.1996.and Government Notification No.10/97 Central Excise Dt: 1.3.1997. If the equipment has Customs Duty as per Customs Tariff of India, the tenderer should mention HS Code for the said equipment.

The University shall provide all the documents under this notification to enable the supplier to clear the goods whenever required after receipt of invoice, airway bill /shipping notice from the principal supplier .

The customs clearance, transportation and delivery charges has to be borne by the supplier

**Indigenous :**

The GST and IGST will be paid as per Govt Notification No.45/2017 –Central Tax (Rate) & 47/2017-Integrated Tax(Rate) dated 14.11.2017 : NO. 9/2018-Central Tax(Rate), No.09/2018- Union Territory Tax (Rate) & No.10/2018 – Integrated Tax(Rate) dated 25.01.2018: and State Tax(Rate).

- 19) Any dispute arising out of this contract shall be settled only at the court having jurisdiction of Coimbatore.
- 20) The authority competent to accept the tender reserves the right to reject or accept any tender without assigning any reasons thereof.
- 21). Regarding the acceptance of supply with reference to the specification and quality of materials supplied, the decision of Registrar shall be final.

**22 ) Agreement :**

For the fulfilment of the order, Successful tenderer shall execute an agreement for the fulfilment of contract in Rs.100.00 Non judicial stamp paper of Tamil Nadu Government . If failed to execute the agreement, the EMD will be forfeited. The conditions stipulated in the form should be strictly adhered to and violation of any of the conditions will entail termination of the contract without prejudice to be right of the University and to recover any consequential loss from the successful tenderer.

- 23). **Loss or Damage:** External damages or shortages that are prima facie the results of rough handling in transit or due to defective packing will be intimated within a fortnight from the date of receipt of the material, Internal defects, damages of any internal parts that cannot ordinary be exhibited on superficial inspection though due to bad handling in transit or defective packing will be intimated within two months from the date of receipt of the stores. In either case the damaged or defective stores will have to be taken back at supplier's cost and risk.
- 24) **Guarantee:** The Supplier shall undertake to repair free of charge or replace any defective part of the equipment supplied due to defective or faulty design or bad workmanship during a period of three years from the date of commissioning of the equipment.
- 25) **Leaflets and Descriptive Literature:** Full descriptive particulars and manuals of the equipment offered should accompany the tender. Information regarding the country of manufacturer or origin of materials in the manufacture of articles should be furnished.
- 26) **Tests:** Manufacturer's certificate for the routine tests specified in the BSS of the test issue or as per manufacturer's standard practice should be forwarded in duplicate. The materials will be rejected, if the test results are not satisfactory.
- 27) **Penalty Clause:** The delivery should be guaranteed by you under the penalty clause mentioned hereunder:  
"Should delivery be delayed by strike, lockouts, fire accidents or any cause whatsoever, beyond the reasonable control of the contractor and whether such delay or impediment occurs before or after the time or extended time for dispatch or completion, a reasonable extension time shall be granted.

If the contractor fails in due performance of this contract, within the time fixed by the contractor the extension thereof , the contractor is liable at discretion of the purchaser to a penalty of 4% per month of the contract value of such portion only of materials as cannot, in

consequence of the delay, be used during each month between the appointed or extended time as the case may be and the actual time of acceptance, and such penalty shall be in full satisfaction of the contractor's liability for the delay but shall no in any case exceed 25 % of the contract value of such portion of the materials.

- 28). If the successful tenderer failed to act up to the tender or backs out when his tender accepted, Security deposit will also be forfeited .
- 29) The material should be supplied strictly in accordance with the specifications given in the Appendix and should fulfil the successful tests carried out by the Competent Authority of the University. The supply and installation should be made as per the delivery schedule The guarantee period shall take effect from the date of installation. Successful tenderer shall be liable to change any defective part during the warranty period. In either case the damaged or defective items will have to be taken back at supplier's cost and risk.
- 30) Training at University Campus at free of charge.
- 31) No communications from any tenderer adding to/adhering or explaining any terms of the tender will be considered prior to the submission or after opening of the tenders by the competent authority
- 32) **Amendment**  
Tender Inviting Authority may amend the tender wherever it is felt that such an amendment is absolutely necessary.  
In case of any modifications in specifications/terms and conditions/ any clarifications to the bid document it will be uploaded in the website only and bidders are requested to verify the amendments before the submission of the tender provided no such change could be effected 48 hours prior to the time fixed for opening of the tender
- 32) The tender shall be submitted subject to and agreeing the above terms and conditions duly attested and certified.

**TO BE FILLED IN BY THE TENDERER:**

<b>Tender Cost</b>		<b>EMD</b>	
<b>DD No /Date</b>	<b>Amount</b>	<b>DD No/Date</b>	<b>Amount</b>

**SIGNATURE OF THE TENDERER**

**APPENDIX**

## **Technical Specifications for Multichannel Electrochemical Workstation for General Electrochemistry, Battery and Supercapacitors - Qty.req.1No.**

- Multi-channel PC controlled electrochemical workstation with minimum of 2 channels (Bi-POT/GAL) or more in a single chassis for Testing, Characterizing and Evaluating Battery, Supercapacitors and Solar Cells.
- Two electrodes as well as Three Electrodes Tests should be possible with provision to connect Independent Reference Electrodes for both Channels independently and simultaneously.
- Bi-potentiostat facility should be available for RRDE experiments
- Both channels should work independent as well as simultaneous.
- Provision to connect 2 Working Electrodes and Measure EW1 and EW2 simultaneously in one Cell Setup with common Reference and common Counter Electrode in a single experiment.

### **Detailed Specifications as below-**

- Multichannel Single Chassis – expandable up to 2 Channels.
- Channels Required: 02 Channels (at least one Channel equipped with EIS Facility).
- Cell Cable 1.5M long with Electrode Connection: 2, 3, 4 electrode + ground or more for both Channels.
- Compliance voltage: 0-20 V or better.
- Applied Voltage:  $\pm 10$  V or better.
- Maximum Output Current:  $\pm 1$  A at  $\pm 10$  V or better.
- Current Ranges:  $\pm 10$   $\mu$ A to 1A or better.
- Accuracy of applied and measured current:  $\pm 0.1$  % of Full scale range or better for both channels.
- Voltage accuracy applied and measured: 0.1% of Full scan range or better for both channels.
- Frequency range: 10  $\mu$ Hz to 1MHz or better.
- CV and LSV Scan rate 1mV to 1000V/s.
- Impedance accuracy of 1%, 1°.
- Input Impedance: 1 T $\Omega$  or better for both channels.
- Bandwidth of electrometer with Booster: >1 MHz or better.
- Input bias current: <5pA or better.
- Acquisition: 200,000 samples/second or better.
- Interface for connection with PC: USB, Ethernet LAN.
- Possibility to upgrade to high current upto 200A for future expansion.
- Safety limits in software on the current and voltage Max and Min values to avoid hazards.
- Possibility to Record/Measure and control E<sub>w</sub> (potential difference between Working and reference) and E<sub>ce</sub> (potential difference between Counter and Reference) simultaneously in one experiment and in real time on both channels.

- On site calibration of the channels should be available.

### **Electrochemistry Software:**

- Complete Electrochemistry Software with Cyclic Voltammetry, Linear Sweep Voltammetry, Staircase Voltammetry, Chronoamperometry, Differential Pulse Voltammetry (DPV), Normal Pulse Voltammetry (NPV), Differential Normal Pulse Voltammetry (DNPV), Square Wave Voltammetry (SWV), AC Voltammetry (ACV), Second Harmonic AC Voltammetry (SHACV) Chrono Coulometry (CC), Double Differential Pulse Amperometry (DDPA), Triple Pulse Amperometry (TPA), Integrated Pulse Amperometry Detection (IAPD), Bulk Electrolysis With Coulometry (BE), Hydrodynamic Modulation Voltammetry (HMV), Chrono Potentiometry with Current Ramp (CPCR), Multi-Current Steps (ISTEP), Potential Stripping Analysis (PSA), Open Circuit Potential-Time (OCPT), Integrated Pulse Amperometry Detection (IAPD), Bulk Electrolysis With Coulometry (BE), Chrono Potentiometry, Galvanostatic Charge / Discharge (Including C rate control) with voltage vs. time.
- Tafel Plot (TAFEL).
- Cyclic Charge Discharge (CCD).
- Amperometric i-t Curve (i-t).
- Sweep-Step Functions (SSF).
- Multi-Potential Steps (STEP).
- Mott Schottky.
- Full Version of CV Simulator.
- Impedance Simulator.
- IR Compensation.
- External Potential Input.
- Auxiliary Signal Measurement Channel.
- AC Impedance Plots  $\log Z$  vs  $\log(\text{freq})$ , Phase vs  $\log(\text{freq})$ ,  $\log Z''$  &  $Z'$  vs  $\log(\text{freq})$ ,  $\log Y$  vs  $\log(\text{freq})$ .
- Nyquist  $Z''$  vs  $Z'$ .
- 3D Plots.
- Admittance  $Y''$  vs  $Y'$ .
- Warburg  $Z''$  &  $Z'$  vs  $\omega_{1/2}$ .
- $\omega$ -angular frequency.
- $Z'$  vs  $\omega$   $Z''$  vs  $Z'/\omega$ .
- $\cot(\text{phase})$  vs  $\omega_{1/2}$ .
- Electrochemical Reactivation.
- Multigraph window capable of displaying up to 50 graphs within a single window.
- Voltage vs. Capacity plot during Charge/Discharge Cycles.



- At least 3 limits and 3 recording conditions per sequence/cycle (ability to limit a cycle or changeover to next sequence with Time, Voltage/Current, Charge/Power all simultaneously).
- GITT and PITT Techniques Battery Characterization -Polarization Curve measurement/IV Testing/ Linear.
- Software should have the facility to record additional signal viz. RRDE, EQCM, etc. Import/export ASCII. Ready-to-use Vis & Generic interface should be included. It should have the facility to display up to 8 plots simultaneously. Comparison with previous experiments (online) should be possible while experiments are in progress.
- 20V Adjustable potential window should be available for the reference Electrode.
- Analysis tools (peak, convection wave, integral), with classical fits (linear, circular) and CV fitting tool.
- EIS measurements simultaneously on the working and on the counter electrodes.
- EIS Software with facility for Equivalent Circuit fitting and simulation. Data presentation: Nyquist, Bode, Admittance, Dielectric, Mott-Schottky, Data analysis: Fit and Simulation, Find circle, Element subtraction and Kramers-Kronig.
- Graphic Representation of Equivalent Circuit with user selectable circuit elements and their values in the circuit.
- Impedance fitting tool with battery diffusion elements available (restricted diffusion, restricted modified diffusion, restricted linear diffusion).
- The impedance fitting tool should have at least 3 different fitting algorithms.
- Modify on Fly should be available to update experimental setting parameters on current running experiment without pausing/stopping.

#### **Accessories to quoted in Main Offer**

- Computer with latest Configuration equivalent to i5, 8GB RAM, clock speed range of 3.5 – 4.2 GHz, 21-inch LED Monitor, 1 TB HDD, DVD Drive/Writer, Optical Keyboard and Mouse.
- UPS (1KVA) with 30 minutes' back up with voltage regulation options.
- Voltammetry Cell kit with Sample vial (20 mL) (5 pcs) and one Teflon cap for inserting Reference, Counter and Working Electrode - 2 Nos.
- RE-1B reference electrode Ag/AgCl – length: 80 mm –OD 6mm – 2 nos
- Platinum counter electrode (5 cm – wire diameter 0.5 mm – OD: 6 mm) – 2 nos.
- GCE Glassy carbon electrode (OD: 6 mm – ID: 3 mm) – 2 nos.

#### **Terms and conditions:**

- **Warranty:** The Main System Should Have a Warranty of Minimum Two Years from the date of installation and commissioning of equipment and Non Comprehensive AMC for one year after completion of warranty.

- **Training:** Training on operation, maintenance and troubleshooting should be imparted to two-three persons at the site of installation.
- **Compliance Statement:** The supplier must submit technical brochures and proper application notes adequately explaining and confirming the availability of the features in the model of the equipment being quoted.
- The supplier must submit a table indicating the compliance of the features of the model of the equipment being quoted with those given in the indent. Features not matching– must be clearly indicated.
- Additional features and Features in the quoted equipment which are better than those in the indent–may be clearly explained.

**SIGNATURE OF THE TENDERER**

# ANNEXURE – I

## TECHNICAL BID

Tender reference No: \_\_\_\_\_

1. Name and address of Bidder
2. The details of EMD  
Amount of EMD Rs. \_\_\_\_\_, DD No. \_\_\_\_\_ dt

Bank: \_\_\_\_\_

3. Due Date of bid :
4. The bid shall remain valid for acceptance for 180 days, from the date of tender opening.
5. Schedule of Requirements:

Sl.No	Brief description of stores				Qty Required	Qty Offered	Delivery	Unit price (Rs)	Total Cost (Rs)
							At Bharathiar University Coimbatore	To be filled in Annex:II	
(i)	GST		%		-	-			
(ii)	Warranty 3years-								
(ii)	Other charges, if any					-	-		
<b>Grand total cost in Rs.</b>									
Total cost (in words)		Rupees.							

**Note: (1) All columns must be filled up.**

**(2) Adhering to the format given above is a pre- requisite for considering your bid.**

**(3) Please indicate applicability.**

I/certify that I/We have completely read and understood and agree to all the terms & conditions given in Part II.

Date : Signature of Bidder :

Office Stamp Signing as :

Name in block letters :

:Mobile No.

Fax No.

e mail

**ANNEXURE: II**

**PRICE BID**

**Tender reference No:** \_\_\_\_\_

1. Name and address of Bidder
2. The details of EMD  
Amount of EMD Rs. \_\_\_\_\_, DD No. \_\_\_\_\_ dt

Bank: \_\_\_\_\_

3. Due Date of bid :
4. The bid shall remain valid for acceptance for 180 days, from the date of tender opening.
5. Rates for items given in Techno-commercial offer at Schedule of requirements are as follows:

SINo	Brief description of stores				Qty. Offered	Delivery	Unit price	Total Cost
						At Bharathiar University Coimbatore		
(i)	GST		%		-	-		
(ii)	Other charges, if any				-	-		
<b>Grand total</b>								
Total cost (in words)		Rupees.						

**NOTE :(1) All columns must be filled up.**

**(2) Adhering to the format given above is a pre- requisite for considering your bid.**

**(3) Please indicate applicability.**

**Date :** \_\_\_\_\_ **Signature of Bidder :** \_\_\_\_\_

**Office Stamp** \_\_\_\_\_ **Signing as :** \_\_\_\_\_

**Name in block letters :** \_\_\_\_\_

**Tele No.** \_\_\_\_\_ **Fax No.** \_\_\_\_\_ **e mail** \_\_\_\_\_

**LETTER OF ACCEPTANCE**

**To**

**THE REGISTRAR  
BHARATHIARUNIVERSITY  
COIMBATORE – 641 046**

**I/We agree to furnish required supplies /services as detailed in the Tender schedule or such portions thereof as you may specify in the Acceptance of Tender in accordance with the General Terms and Conditions governing the contract / supply order enclosed hereto duly accepted on receipt of the order for the same.**

**I /We agree to hold this offer open until and shall be bound to supply / omission /erect the equipment and dispatch the same within the specified period.**

**I/ We agree to supply and commission /erect the equipment and complete the whole of the work and hand over to the purchaser within the period of weeks. From the date of receipt of intimation from you regarding acceptance of this tender / receipt of supply order.**

**Signature of the bidder  
With office stamp**

**Name & Address**

**Station**

**Date:**