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Ref: PU/PHY/ NRB-DRDO-NS/2016-2017/22a

Date: 12-10-2016

Sub: Quotation for **ELECTROCHEMICAL SYSTEM AND COMSOL SOFTWARE**” under my NRB-DRDO Major Research project Reg.

Ref.1: Project sanction No. NRB-377/MAT/16-17

Date: 19- 04- 2016

Sealed quotations are invited for the purchase of “**ELECTROCHEMICAL SYSTEM AND COMSOL SOFTWARE**” under my NRB-DRDO major research project and all the quotations should reach to the undersigned on or before **28.10.2016** as per the list enclosed below of the mentioned subject.

**I. Name of the equipment: POTENTIOSTAT/GALVANOSTAT WITH ELECTROCHEMICAL IMPEDANCE SYSTEM (EIS).**

**Detailed specifications:**

- EIS freq. Range: 10 $\mu$ Hz -10KHz, 1MHz, for different channels. Automated sweep facility for the entire freq. Bandwidth.
- EIS sine wave: should be able to generate in Voltage & Current sweep (for very low impedance testing)
- EIS sine wave amplitude: few milli volts to 2 V RMS & few micro amps to 20 mA RMS.
- Voltage range: 0 -30V
- Voltage measurement Resolution : 50  $\mu$  V or less
- Applied Current: +/- 1nA to +/- 2A within or more range
- Current accuracy should not be less than 0.05% of the measured value/ or reading.
- Current resolution: 100f A or less

Data acquisition speed: Minimum should be able to acquire 300 samples/ second

- Temperature measurement option should be preferably for every multi-channel.
- Cell cables preferably 2.5 M should be provided for every multi-channel.
- Preferably sample holders which can be plugged directly to the Instrument for every multi- channel.

Software capability

Complete software facility to operate and analysis the data obtained from the Potentiostat / Galvanostat with Electrochemical Impedance System

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### **Options: Accessories**

- (a) Glass cells: 1 no with Teflon cap, purge tube
- (b) Pt Working Electrode: 1 nos.
- (c) GC Working Electrode: 1 nos.
- (d) Ag/AgCl Reference (aq): 1nos.
- (e) Ag/AgCl Reference (non aq): 1 nos.
- (f) Calomel Reference Electrode: 1 nos.
- (g) Pt Wire Counter Electrode: 1 nos.
- (h) Electrode Polishing Kit
- (i) Cell Stand
- (j) Data acquisition and Data analysis system

### **II. Name of the Software:** COMSOL Multiphysics with the following Modules

1 COMSOL Multiphysics, Single User CPU-locked Licence (CPU), for one (1) computer.

2 Batteries & Fuel Cells Module for use with COMSOL Multiphysics, Single User CPU-locked Licence (CPU), for one (1) computer.

3 Electrochemistry Module for use with COMSOL Multiphysics, Single User CPU-locked Licence (CPU), for one (1) computer.

4 Design, simulation and analysis of a magnetron sputtering process Module for use with COMSOL Multiphysics, Single User CPU-locked Licence (CPU), for one (1) computer.

5 Design, Analysis and simulation of Electrospinning process Module for use with COMSOL Multiphysics, Single User CPU-locked Licence (CPU), for one (1) computer.

Also quote other modules as an options.

### **III. TERMS AND CONDITIONS**

**1.** Last date and time of receipt of the Tenders: **28.10.2016** as per the list enclosed below mentioned subject to the following terms and conditions.

**3.** Tender Document fee **Rs.250/-**

**4.** EMD rates: 2.5% of the quoted price.

**5.** Two bid systems will be to be strictly followed, that is one for technical bid and another for commercial bid. They have to be submitted in two separate sealed covers.

**6.** The EMD should be submitted along with quotation in a sealed cover, super-scribing thereon bidder's name and name of the Item. Any tender, submitted without EMD, will not be accepted.

7. Quoting merely the lowest price does not confer any right to any bidder for award of supply order. The University's Purchase Committee, reserves the right to select any bid / equipment under the grounds of specification compliance, technologically advanced quality, proven performance track record, brand reputation, service backup support, additional warranty, offer of additional / special features, Compatibility with the existing System, Training, etc.

#### **8. Sealed Tender should be submitted to**

**To**  
**Prof. N. Satyanarayana,**  
**Principal Investigator – NRB-DRDO**  
**Department of Physics, Pondicherry University,**  
**R.V. Nagar, Kalapet, puducherry-605014.**

9. Quoting the Core price & Tax, Duties, Discount etc. The taxes / duties / discounts, if applicable, are to be explicitly and separately shown in the bid.

**10. Eligibility:** The firm must have the requisite domain expertise with regard to supply, installation and post-sale service of the items they are quoting. The firm should have been in existence for at least six years as on the date of this tender and must have executed at least three orders for this kind of equipment during the last three years.

**11. Duty Exemption:** The University has been granted the benefit of exemption from the payment of the Central Excise Duty and Customs Duty by the Department of Scientific and Industrial Research (DSIR), India, in respect of

- a. Scientific and technical instruments, apparatus, equipment including computers.
- b. Accessories and spare parts of goods specified in (a) above and consumables.
- c. Computer software, compact disks, CD ROM, Recording magnetic tapes, microfilms, micro-chips etc.
- d. Prototypes.

Customs duties at Indian port, if any, will be to the account of the University.

**12. Warranty:** The material covered under the purchase order, when installed, shall be warranted for the quality, workmanship, trouble free operation and performance for a period of at least 36 months from the date of putting the system into operation at the Pondicherry University, or at least 42 months from the date of receipt of the last lot of the consignment in India. If any item covered under warranty fails, the same shall be replaced free of cost including all the applicable charges including shipping cost both ways.

**13.** The information pertaining to infra-structural, power and any other requirement for satisfactory installation and commissioning of the whole system must be provided by the bidder, at least 120 days in advance of the installation to be commenced if purchase order is issued. All drawing for electrical connections, electrical safety items piping work etc. must be provided in detail.

**14.** Complete technical specifications and literature, including process flow, to be included with the quotation. Manufacturers of various major parts/equipment must be mentioned explicitly.

**15.** A clear statement regarding availability of after-sales service and availability of spare-parts for next 5 to 10 years should be included.

**16.** A recent customer list (within last five years) with contact details including email address is to be submitted with technical bids / bids as the case may be.

17. If the bidder is an authorized representative in India, they are requested to inform their technical ability to take care of the problems in the system, if developed later within the warranty and outside the warranty period. The responsibility of the Indian agent must be clearly specified.
18. The bidder from abroad shall obtain, if required, export permission from the appropriate authorities in his country or the country of origin for items to be shipped to India in case of items to be imported. The University shall provide necessary information if required for this purpose.
19. All equipment must operate at 230V/50 Hz single phase and / or equivalent three phase electrical power.
20. The validity of the each quotation should be at least 180 days from the closing date of the bid.
21. The offers will not be considered if received after the bid closing time & date.
22. The offers received through telex / tele-fax / e-mail will not be accepted by the University under any circumstances.
23. The University shall not be responsible for any delay / loss or non-receipt of tenders by post / courier service.
24. No unsolicited correspondence shall be entertained after the submission of the offer.
25. If an order is placed with the firm, the purchase shall be governed by an agreement as per the University rules in force at the time.
26. Additional terms and conditions will be incorporated in the purchase order, if needed, to safe guard the interests of the University.
27. Tender is not transferable.
28. In case of any dispute in respect of the tender, all legal matters shall be instituted within the jurisdiction of the place where the purchaser ordinarily resides.
29. **Power to reject the offer:** Pondicherry University reserves the right to accept / reject any offer in full or in part or accept any offer other than the lowest offer without assigning any reason thereof. Any offer containing incorrect and incomplete information shall be liable for rejection.
30. No Agency commission will be paid to any authorized agent in India.
31. **Liquidated damages:** Timely supply of the ordered items, installation, commissioning (wherever is applicable) and training etc. is the essence of the contract. In case of failure to supply within the time specified in the Purchase order, a penalty/LD of 0.5% of the total value per week or a part thereof shall be levied subject to a maximum of 7.5% in respect of items which are not supplied. The decision of Pondicherry University shall be final in this regard.
32. The training should be provided by the supplying companies on the specimen and operation of the equipments for a minimum period of two weeks from the date of installation with an expert team.
33. For any clarification with respect to technical specifications, please contact the respective Department Heads as per the details given below: -

Sl. No.	Name of the Department	Name of the contact person	Contact Numbers
1.	Department of Physics	Prof. N. Satyanarayana	0413-2654404 and 09488511920

34. Canvassing in any form is a disqualification.

### **III. Specific Conditions**

#### **1. Payment of EMD:**

The Tender must be accompanied by EMD as stated above, by means of a Demand Draft, drawn in favour of **the Finance Officer, Pondicherry University, payable at Puducherry** separately. *The amount is refundable. The Small Scale units are exempted from payment of EMD provided they should enclose proof of their exemption Certificate issued by the competent authority.*

#### **2. Payments terms:**

Normally a letter of Credit will be opened for 90% of CIP price, on receipt of order acknowledgement. However, 100% of the LC also be considered, if the supplier provide Bank Guarantee towards performance Security for the 10 % of the total cost of the equipment to cover the Warranty Period. Bank charges in India shall be borne by the purchaser and outside India shall be born by the contractor / supplier.

3. The offer must be in English. The rates should be indicated both in figures and words against item specified in the given table. It is preferable that the price be quoted in Rupees or in US Dollars or in major foreign currencies.

4. **The total cost should be quoted for FOB as well as CIF – Pondicherry University.**

5. However, the price quoted under FOB or should also include the following cost if they are required during the initial stage:

a) Local freight / insurance for Chennai airport to University laboratory.

b) Installation cost if any.

c) Cost of consumables which are required for the equipment for initial operation upto a reasonable time.

6. In case of the Principal supplier of foreign country unable to meet the conditions stated at para no.4, the local agent / dealer should fulfill the above said conditions in respect of Local Insurance, Freight, safety transport and installation, etc.

7. The bidder from within India shall obtain the requisite approval for Imports etc., if required.

Thanking you,

Yours Sincerely

*N. Satyanarayana*  
12/10/2016

**Prof. N.Satyanarayana**  
(Principal Investigator- NRB-DRDO)

**Prof. N. SATYANARAYANA**  
**PRINCIPAL INVESTIGATOR**  
**DEPARTMENT OF PHYSICS.**  
**PONDICHERRY UNIVERSITY**  
**PUDUCHERRY - 605 014**

Date: 12-10-2016