DEPARTMENT OF CHEMICAL ENGINEERING
INDIAN INSTITUTE OF TECHNOLOGY DELHI
HAUZ KHAS, NEW DELHI – 110016

Ref No: IITD/ChemEng/RP02067 Dated: 30/09/2011

NOTICE INVITING QUOTATION

Sub: Purchase of an Electrochemical system – Potentiostat and Galvanostat

Sealed quotations in separate envelops of technical and commercial bid kept in a one sealed outer envelop are invited for purchase of a '**Electrochemical system – Potentiostat and Galvanostat'** as per specifications given below. Your sealed quotation should reach latest by 5.30 PM on 14/10/2011 to **Prof. S.Basu, Department of Chemical Eng., Indian Institute of Technology – Delhi (IIT Delhi), Hauz Khas, New Delhi - 110016**. Your quotation should be superscribed "Quotation for **Electrochemical system – Potentiostat and Galvanostat** 30.09.11.

Specifications:

Electrochemical System (Potentiostat/Galvanostat) with FRA, PC interface and all necessary electrochemical softwares for data acquisition and analysis. The system should have the ability to perform conventional electrochemical experiments such as CyclicVoltammetry, Potentiostatic, Galvanostatic, Square wave, open circuit, chronoamperometry, chronocoulometry, chronopotentiometry, fuel cell i-V characteristics, frequency response analyses etc.

All necessary information (data, standards, and reference material) for calibration of the instrument must be provided.

Essential Accessories*: Electrochemical Cell with glass cell of 40 ml and 20 ml, suitable lid, purge tube. Stand rod, base plate and ring. 2 mm diameter Pt disc working electrode/ Glassy Carbon electrode (GC), Electrode Polishing Kit for GC., Ag/AgCl Reference Electrode, Pt wire counter electrode,

*Please quote Indian made item for price benefit of accessories whenever possible without sacrificing the quality.
Detail Specs

S.No.	Item(s)	Description
1	Compliance voltage	± 30 V at 2 A
2	Current	± 2 A at 30 V
3	Voltage range	± 10.0 V
4	Gain Band width	1 MHz or more
5	Bandwidth of electrometer	> 4 MHz
6	Input impedance	>1 T Ohm // 8pF
7	Input Bias Current	< 1 pA
8	Current Ranges	10nA to 1A in several ranges
9	Resolution at 10 nA range	30 fA
10	System rise time	< 250ns
11	Noise & Ripple	< 25 μV rms referred to external signal
12	Measured Potential resolution	0.3μV
13	Frequency Range	10μHz to 1 MHz
14	Applied Amplitude	0.5 mV to 1000 mV in two ranges
15	Input Range	± 5000mV
16	Interface	USB/RS232 or other interface for PC
17	**System Software:**	
	DATA PRESENTATION: As mentioned above and it (software and port) should support 10,000 cycles of CV and able to transfer data to PC	
	ADVANCED DATA ANALYSIS: Software should have a dedicated data analysis environment, large number of data analysis tools and an electrochemical spreadsheet to analyze the data, perform calculation and create new plots without having to export the files to a third-party software.	
18	**The system and the software should be capable of performing following electrochemical measurements:**	
(a)	**Cyclic Voltammetry**	
(b)	**Linear sweep Voltammetry(LSV)**	
(c)	**TAFEL plot**	
(d)	**Chrono techniques**	

(e)	**Voltammetry Techniques**: Sampled DC Voltammetry , Differencial pulse and normal pulse Voltammetry
(f)	**IR Compensation**
(g)	**Square Wave Voltammetry**
(h)	**Steps and Sweeps**
19	**Electro-Chemical Software data analysis features:**
(a)	Kinetic and wave log analysis, IR compensation
(b)	CV fit and simulation, convolution and de-convolution,
(c)	Automatic and interactive peak search,
(d)	Linear , exponential and polynomial base line correction,
(e)	Linear regression, integration and differentiation, smoothing
(f)	FFT and Weighted moving average
(g)	Automatic polarization resistance determination using Taffel Plot
(h)	Transient time analysis for Chrono potentiometry, Chrono Amperometry and Chrono coulometric plots
20	**Electrochemical Impedance Spectroscopy Software**
	User-friendly Windows based software for EIS measurements. It should have following features;
(a)	Frequency scan with Linear, Log or Square root distribution.
(b)	Single scan with different amplitudes for different range of frequencies
(c)	Single Sine or Multi-sine measurements
(d)	Data representation in different plot formats such as Impedance Scan, Admittance Scan
(e)	Bode Plot, Epsilon Plot, Mott Schottky Plot etc
(e)	Potential Current or Time Scans
(f)	Variety of data analysis tools such as Find Circle in Nyquist Plot
(g)	Equivalent Circuit Fitting with graphical representation of circuit elements, there should not be any limit on number of elements in the circuit. Also it should be possible to program the value and weightage of each of the element.
(h)	Possibility to use different elements such as:
	Resistance, Capacitance, Inductance, Constant Phase Element, Warburg Element, Gerischer impedance element for equivalent circuit description, fitting and simulation etc
(i)	Kramer & Kronig Test to check the validity of measured data.

Terms & Conditions:

1. The quotations must have validity of at least three months.
2. Quotation must include insurance and air-freight charges, delivery period of the items addresses to The Indian Institute of Technology, Delhi, India (both FOB and CIF, New Delhi).
3. The products will be used for educational purposes. Any applicable academic institution discounts should be offered and stated.
4. Detailed Brochures should accompany the offer.
5. If the bidder is an authorized dealer then the authorized Indian dealership certificate from the principles should be enclosed.
6. Warranty details must be given.
7. Payment will be through irrevocable letter of Credit.
8. In case the items are proprietary products of the company, a proprietary item certificate stating the same must be provided.
9. Training should be provided free of cost.
10. Institute reserves the right to accept or reject any or all the quotations without assigning reasons thereof.

Chairman, Purchase Committee