

2/6/17

Minutes of the Pre-Bid Conference held on 20.02.2017 at Conference Hall, Administrative Block, Room No.F1-02 (First Floor), CUTN in connection with pre-bid queries raised by prospective bidders against our Tender Enquiry No.35/2016-17 for supply and installation of Laboratory Equipment for Department of Materials Science

The following members of the Committee were present:

- (1) Prof. P. Ravindran, Head, Department of Materials Science
- (2) Dr. S. Beer Mohammed, Associate Professor, Department of Materials Science
- (3) Dr. Srinivasan Sampath, Assistant Professor, Department of Materials Science
- (4) Dr. V. Gunasekaran, Assistant Professor, Department of Materials Science

Shri.B. Thiagarajan, Assistant Registrar (Purchase) participated as a presiding officer.

The representatives of following prospective bidders attended the Pre-bid Conference:-

- 1. Shri. Jedson Charis, Sales Engineer, M/s. Ametek Instruments India Private Limited, Chennai
- 2. Shri. E. Rajendiran, Principal Engineer, M/s. Sinsil International, Bangalore
- 3. Shri.K. Vijayakumar, Asst. Manager (Sales), M/s. Anatek Services Private Limited, Chennai
- 4. Shri.Ashitosh, Tech. Marketing Manager, M/s. Ants Ceramics Private Limited, Mumbai

An email communication received from M/s. Advanced Measurement Technology, Chennai on 17.02.2017 with regard to specification has been addressed by the Committee.

Opening Remarks:

- (i) Shri.B. Thiagarajan, Assistant Registrar (Purchase) at the beginning welcomed the participating members and after introduction, he briefed all participants about the tender.
- (ii) It was explained that purpose of Pre-Bid Conference is to explain the various important provisions of the bidding documents to the prospective bidders and to clarify the queries that the bidders may have in the subject, bidding documents.

DEPARTMENT OF MATERIALS SCIENCE
 CENTRAL UNIVERSITY OF TAMIL NADU
 DATE 24.02.2017
 Ref. No. 35/2016-17

✓

P. Ravindran
13/1/17

S. Beer Mohammed 24/2/17

Srinivasan Sampath 1-3-2017

V. Gunasekaran 24/2/17

26/2/17

The techno-commercial queries and clarification sought by the prospective bidders are given as under:-

Sl. No.	Query / Clarification Sought	Reply
1.	Whether the fee paid for tender document is differ from tender fee?	An amount of Rs.500/- charged towards tender document fee is collected towards tender fee
2.	Whether the Quote includes supply of the lab equipment upto CUTN Campus, Thiruvarur ?	As per tender clause No.10.2 Price quoted for equipment must include all costs associated with packing, transportation, insurance, all duties and levies, delivery of equipment, loading and unloading on DOOR DELIVERY basis to the university at Neelakudi Campus, Thiruvarur 610 005 including its installation, commissioning, integration and validation. Further, the custom duty as applicable after considering eligible concessions based on DSIR exemption etc will only be paid by the purchaser. The University can provide the copy of the DSIR customs and excise duty exemption certificate upon request

The technical queries and clarification sought by the prospective bidders and reply to the queries for the **Item No.9- Electrochemical Work station**, are given as under:-

Sl. No.	Query / Clarification Sought	Reply
1.	There is no mention of compliance voltage in the tender specification. Request you to clarify on this. (for example +/- 10V).	The compliance voltage range is +/- 20V or better with the current range from +/-400 mA to 1A.
2.	Please mention whether EIS (Electrochemical Impedance Spectroscopy) facility is required, if so on what frequency range (for example: 10µHz to 1MHz).	We have already given about this specification in our tender specification (as an 11th spec) as AC impedance. Please check it. However, we again emphasize that EIS (Electrochemical Impedance Spectroscopy) is required with frequency range from 1µHz to 1MHz.
	Please mention the requirement for lowest and highest current along with number of current ranges and with current resolution(for example: 100nA – 500mA having 8 current ranges with pA resolution)	Current range: Smallest current range +/- 10 nA to current range from 500 mA to 1A in eight ranges with pA resolution.

The revised technical specification for Item No.9- Electrochemical Work station, is enclosed in **Annexure- I**.

The bidders were informed to ensure that all mandatory documents /certificates/ undertakings are enclosed with the bids, as specified in the tender document.

[Signature]
1/3/17

[Signature]
24/2/17

[Signature]
1-3-2017

[Signature]
24/2/17

26/17

The bidders were informed that the minutes of the pre-bid conference and amendment of the bidding forms shall be published on the website of Central University of Tamil Nadu. The bidders were also informed that they should also regularly visit the CUTN website for any amendments issued.

In case of any further information/clarification, they were asked to contact over phone, to the Purchase Section at 04366-277359 (or) send email on purchase@cutn.ac.in; Individual visits are not entertained.

The meeting ended with a vote of thanks to the representatives of the prospective bidders.

V. Gunasekaran
24/2/17

Dr. V. Gunasekaran
Assistant Professor,
Department of Materials Science

S. Srinivasan Sampath
1-3-2017

Dr. Srinivasan Sampath
Assistant Professor,
Department of Materials Science

S. Beer Mohammed
24/2/17

Dr. S. Beer Mohammed
Associate Professor,
Department of Materials Science

P. Ravindran
1/3/17

Prof. P. Ravindran
Head, Department of Materials Science

Electrochemical Work station

(With Detailed Specifications)

Electrochemical Workstation with Potentiostat/Galvanostat with Corrosion, Impedance, corrosion, Electrochemistry s/w, Battery charge and discharge, deposition, photovoltaic studies with latest Windows Based Acquisition s/w should also include power supply 220V/50Hz, Interface Cable for USB Port, 4 glass cells with one cell top, Cell Cable & Installation.

General Techniques Required in the system

- Cyclic Voltammetry (CV) with simulation/fitting programs
- Linear Sweep Voltammetry (LSV) with stripping LSV includes: I-V measurements, I_{max}, P_{max}, Fill factor Power Max, etc. Voltage range: +/- 10V.
- Bulk Electrolysis with Coulometry (BE)
- Differential Pulse Voltammetry (DPV) with stripping
- Normal Pulse Voltammetry (NPV) with stripping
- Square Wave-Osteryoung Voltammetry (SWV) with stripping
- Tafel Plot (TAFEL), potentiodynamic deactivation, pitting corrosion, corrosion rate, linear Polarisation, Corrosion current etc.
- Multi-Potential Steps (STEP)
- Multi-Current Steps (ISTEP)
- Amperometric i-t Curve (i-t) – Lifetime testing
- Polarisation I-V curves Linear Sweep
- Open Circuit Potential – Time (OCPT)
- AC Impedance (IMP) [Minimum range required: 1 micro Hz to 1 MHz]
- Impedance – Time (IMPT) (Mott-Scottsky)
- Impedance – Potential (IMPE)
- Impedance Simulator with fitting
- Open Circuit Potential – Time (OCPT)
- Bode : log Z vs log (freq)
- Bode : Phase vs log (freq)
- Bode : log Z'' & Z' vs log (freq)
- Bode : log Y vs log (freq)
- Nyquist ; Z'' vs Z'
- Admittance; Y'' vs Y'
- Warburg: Z'' & Z' vs $\omega^{1/2}$ w-angular frequency
- Z' vs ω Z''
- Z' vs Z''/ ω
- Cot (phase) vs $\omega^{1/2}$
- Galvanostatic Charge discharge single/multiple cycle -Chrono Potentiometry (CP) with potential limits, polarity by potential or time, no.of cycles etc
- Voltage vs current density curves
- Single or Multi potential steps with charge limits, single or multi current steps, mixed voltage/current control using macro
- I-V measurements, I max, Pmax, Fill factor etc. Voltage range: +/- 10V and minimum current limit: +/- 10pA to 1A .

[Signature]
22/2/17

[Signature]
22/2/17

[Signature]
21-2-2017

[Signature]
22/2/17

25/1/17

- Compliance voltage range: +/- 20V or better with the current range from +/- 400 mA to 1A.
- EIS (electrochemical impedance spectroscopy) is required with frequency range from 1 micro Hz to 1 MHz.
- Smallest current range +/- 10 nA to current range from 500 mA to 1A in eight ranges with pA resolution.

Other General Useful Techniques Required along with the system

- Chrono Amperometry (CA)
- Chrono Coulometry (CC)
- AC Voltammetry (ACV) with stripping
- Differential Normal pulse Voltammetry (DPNV) with stripping
- Second Harmonic AC Voltammetry (SHACV) with stripping
- Differential Pulse Amperometry (DPA)
- Double Differential Pulse Amperometry (DDPA)
- Triple Pulse Amperometry (TPA)
- Integrated Pulse Amperometry Detection (IAPD)
- Hydrodynamic Modulation Voltammetry (HMV)
- Sweep-Step Functions (SSF)
- Chronopotentiometry with Current Ramp (CPCR)
- Potentiometric Stripping Analysis (PSA)
- Staircase Voltammetry (SCV) with stripping
- Auxiliary Signal Measurement Channel
- RDE control (0-10V output)
- IR Compensation
- External Potential Input

Electrochemical Cell System should include 4 glass cells with one Cell top

- Pt Working Electrode
- GC Working Electrode
- Ag/AgCl Reference (aq)
- Ag/AgCl Reference (non aq)
- Calomel Reference Electrode
- Pt Wire Counter Electrode
- Electrode Polishing Kit
- Cell Stand

Licensed & Full version of softwares required with following features:

32-bit Windows-based software, Multi-document interface, Open, save, delete, list, conversion, and print files Run, macro, iR compensation, filtering, preconditioning, step functions, and cell control Data plot, overlay and parallel plots, Graphics options, color and font selections Smoothing, derivatives, integration, semi-derivative and semi-integral, interpolation, baseline fitting & subtraction, linear baseline correction, data point removing, data point modification, background subtraction, signal averaging, mathematical operation, Fourier spectrum Calibration curve, standard addition, data file report, concentration - time dependence report and plot. Digital simulation, user defined mechanisms Data information,

PP
8/2/2017

S. Gupta
22/2/17

S. Gupta
22-2-2017

Vinay Kumar
22/2/17

25/1/17

data listing, equations, clock, toolbar, status bar Context sensitive help Purge, knock, stir controls for mercury electrode Maximum data length: 128K-8192K selectable

Life time upgradation of software is required along with the system. .

Desktop Computer with 500 GB Hard Disc, 4GB RAM, 18.5" LED Monitor, DVD Writer with Standard Configuration.

Cell Stand with Faraday cage

Input gas line connection should be easy and quick. Manual or Remote on-off control of gas purge-blanket. Manual control of gas purge blanket rate. Manual or remote on-off control of magnetic stirrer. Adjustments of magnetic stirrer rate should be controlled manually. Voltammetry cell cap. Small volume glass cell vials. Mounted cell top compatible with electro-chemical accessories are required

Essential Accessories required

Sample holder for Pellets & solid (bulk) samples.

Handwritten signature
22/2/17

S. y. led
22/2/17

S. Smith
21-2-2017

Manoj Kumar
22/2/17