



Alagappa University
(Accredited with "A+" Grade by 'NAAC')
Karaikudi – 630 003



Ref: A1/Tender/970617

Dt: 03/11/2017

Tender Notice

Sealed Tenders are invited by the undersigned from reputed companies for the supply and installation of the following equipment.

Sl. No	Name of the Equipment	Approx. Value in Lakhs.	Cost of Tender Schedule Rs.	EMD (Demand Draft) Rs.
1.	X-ray Photoelectron Spectroscopy	Rs.300	Rs. 15,000 + GST 12%extra	3,00,000

Tender documents can be had from the undersigned on payment towards cost of Tender Schedule as mentioned above, by demand draft drawn in favour of **The Registrar, Alagappa University, payable at Karaikudi.**

Filled in Tenders both Technical and Commercial bid in Separate Sealed Covers put into a Single big cover should reach on or before 07/12/2017 upto 03.00 p.m and the technical bid will be opened at 4.00 p.m on the same day.

For further details visit our website www.alagappauniversity.ac.in and www.tenders.tn.gov.in

The undersigned reserves the right to accept or reject or cancel any tender in part or in full without assigning any reason.

Place: Karaikudi
Date: 03/11/2017

Prof.V.Balachandran,
REGISTRAR i/c.

ALAGAPPA UNIVERSITY, KARAIKUDI

Ref:A1/Tender/9706/XPS/17

Dt: 03/11/2017

SEALED TENDERS IN DUPLICATE under “two cover system” are invited from reputed firms for the supply of “**X-ray Photoelectron Spectroscopy**” to this University, so as to reach the THE REGISTRAR, ALAGAPPA UNIVERSITY, KARAIKUDI. 630 003 on or before and should be superscribed as follows:

“TENDER REF.NO.Ref: A1/Tender/9706/XPS/17

due on: 07/12/2017

- The same will be opened by the Registrar or any of his authorized representatives in the presence of such of those tenderers or their duly authorized agents who may be present at that time. The date of opening the tender will be intimated later.
 - (i) The prices quoted should be in Indian Rupees / Foreign Currency and should include taxes, Central Excise and customs Duty if any, freight to destination and levies and should be for delivery at Alagappa University, Karakudi 630 003.
 - (ii) The tenderers are requested to quote their GST Registration Number in the Tender form without fail. The University is authorized to withhold the amount of tax until the party produces an order of the court of competent jurisdiction, declaring the liability of the transaction to “GST”.
 - (iii) Ownership of materials shall rest with the supplier until the same is delivered to this University in good condition.
- Every Tender should be accompanied by an EMD of **Rs.3,00,000/-** through Demand Draft drawn in favour of the Registrar, Alagappa University payable at Karaikudi. **The fact of remittance of EMD should be superscribed on the outer cover of the tender. Tender covers without such superscription will not be opened.** The deposit of successful tenderer which will carry no interest will be refunded only after the satisfactory completion of the supply of materials ordered and audit of accounts thereto. Request from firms for waiver of tender deposit will not be considered. No adjustment from the amount due to tenderer will be permitted to be treated as deposit for this tender. **Tenders without EMD will not be considered.** Registered small scale industries who provide evidence of existence from competent authorities will be exempted from payment of EMD. In respect of unsuccessful tenders, the EMD will be released after finalization of tender.

- No communication from any tenderer adding to / altering or explaining any terms of the tender will be considered after the opening of the tenders by the Registrar. If any tenderer withdraws his tender after the tenders are opened, his tender deposit is liable to be forfeited. Supplies should be effected within the delivery period quoted with tendered rates, failing which the tender deposit of the successful tenderer will be forfeited, and the order placed also cancelled at their risk and cost. Conditional offer such as subject to prior sales etc. are liable to be summarily rejected.
- The Registrar, Alagappa University, Karaikudi reserves **the right to accept or reject** any tender either partly or wholly without assigning any reason therefore.
- The quantities mentioned are only tentative and are liable to be added or subtracted.
- No suit or any proceedings in regard to any matter arising in any respect under this contract shall be instituted in any Court save in the District Munsif Court or Sub Court at Sivaganga. It is agreed that no other Court shall have jurisdiction to entertain any suit or proceedings even through part of the cause of the action raised within their jurisdiction. In case of any part of cause of action arises within the jurisdiction of any of the Court in Tamil Nadu and not in the Court of Sivaganga then it is agreed to between the parties that such suits or proceedings shall be instituted in a court within Tamil Nadu and no other court outside Tamil Nadu shall have jurisdiction even though any part of the cause of action might arise within the jurisdiction of such courts.
- The successful tenderer should arrange to supply the equipment as per terms of the accepted tender. **Full payment will be made to the supplier only after the receipt of the materials at site in good condition and after making necessary tests. Any loss or damages in transit should be made good by the supplier at free of cost. The advance payment will not be made under any circumstances.** Defects in manufacture if any detected at any time should be rectified at free of cost.
- The decision of the Registrar is final in respect of defective equipment. Quantities given in the tender are subject to alteration at the time of placing orders by the University.
- The Successful tenderer should produce income-tax clearance certificate. In the case of partnership firms, this should be produced for each of the partners and the firm.
- The tender should be valid for a period of 120 days from the date of opening.
- Warranty/Guarantee period should be specified.

- AMC of equipment should be quoted in the Tender for adopting after completion of the warranty period.
- Only parties who agree to abide by the above terms and conditions may send tenders and submission of tenders against this specification would signify such acceptance of the above terms and conditions by the tenderers.
- Tenderers should specifically note that their tenders are liable to be summarily rejected if
 - the rate quoted is not F.O.R. destination
 - complete technical details of the products as the case may be are not sent with the tender
 - validity period is not indicated
 - EMD is not remitted
- Detailed Specifications of the equipment required are enclosed.
- The bidder must quote for all the products as per the tender and must comply with all the tender specifications as per the tender.
- **TECHNICAL BID: FIRST COVER**

The FIRST COVER should contain the following:

- Tender documents duly completed and signed but WITHOUT INDICATING THE RATE QUOTED.
- The technical details of the models offered along with the supporting original technical literature, leaflets, brochures etc.
- Earnest money
- Cost of tender form if down loaded from the website.
- Details of supplies of similar equipment along with copies of supply orders.
- Latest agreement/authorization from the foreign firms in case of Indian agent is submitting tender on its behalf.
- Trade registration certificate from the RBI/Ministry/department concerned.
- Latest income tax clearance certificate/ copy of PAN card/TIN.
- Latest Tax clearance certificate.
- Technical bulletin with specifications clearly stated with model.

- **PRICE BID: SECOND COVER**

SECOND COVER should contain the following:

Details of rates, taxes, duties, discounts, if any, quoted by the bidder, should be submitted.

Any documents in support of price bid.

For Indian manufacturer rate should be at F.O.R destination.

For foreign supplier rates should be at CIP .

NOTE

(i) The word “**TECHNICAL BID**” should be written clearly and prominently on the first cover along with tender number, name of the equipments and date of opening. Similarly, the word “**PRICE BID**” should be written clearly and prominently on the second envelop along with Tender Number, Name of Equipments.

Full name and status of the person signing the tender documents must be clearly mentioned in the Tenders.

Tender unsealed or having overwriting and cutting without proper attestation and signature will not be considered.

(ii) An EMD i.e. Rs. 3,00,000/- through a Demand Draft drawn in favour of “The Registrar, Alagappa University and payable at Karaikudi should accompany the tender. Last date for receipt of tenders is upto 3.00 p.m on 07/12/2017 and the technical bid will be opened on the same day at 4.00 p.m

REGISTRAR

Technical Specification for X ray Photoelectron spectroscopy (XPS)

Sl.No	Criteria	Specification
1.	Required System	The XPS system should be able to perform analysis on powder or thin films samples of semi conductors, metal alloys, ceramics, glasses, polymers, magnetic materials and insulators. Instrument should have the features to conduct XPS experiment including Scanning/mapping or imaging, survey spectra, narrow region spectra from elements of interest and sputter depth profiling as well as angle resolved XPS analysis.
2.	X-ray sources	<p>The instrument must be equipped with standard mono chromatic Al (k-alpha) X-ray source.</p> <p>The monochromator should be ≥ 200 mm Rowland circle quartz crystal X-ray monochromator for high resolution, high sensitivity X-ray photoelectron spectroscopy.</p> <p>The instrument must provide error-free positioning of the x-ray beam to allow small area XPS analysis in the range of $\leq 30 \mu\text{m}$ to $\geq 300 \mu\text{m}$.</p> <p>The ultimate XPS energy resolution from conducting as well as non-conducting sample must be at < 0.50 eV (FWHM) measured on Ag 3d5/2 and < 0.85 eV for O-C-O component on polyester sample. The tenderer must specify how this requirement is met.</p>
3.	Vacuum system	<p>The sample introduction chamber and analysis chamber should be fitted with a Turbo molecular pump (TMP) with a suitable backing pump and an additional titanium sublimation pumps.</p> <p>All the pumps and valves must be controlled from system software.</p> <p>A set of safety features to protect the integrity of vacuum system, vacuum components and electronics in case of power failure.</p>

		Analysis chamber: Guaranteed at $\leq 5 \times 10^{-9}$ mbar.
4.	Insertion chamber	Provided with Camera system/multiple cameras that gives a global view of sample holder.
5.	Analysis chamber	<p>The chambers must be constructed for optimum magnetic-field shielding and with X-ray protection.</p> <p>Chamber should have ports to allow additional analytical components simultaneously for monochromated X-ray source, and ion source for cleaning, depth profiling and charge neutralization or any other accessories like UV lamp for UPS to be added in future.</p> <p>Chamber must be sealed with appropriate UHV compatible gaskets and have an entrance chamber/ loadlock which allows rapid introduction of non-outgassing samples into the main analysis chamber.</p> <p>The chamber must have a high quality optical camera/microscope to view the analysis position in the sample.</p>
6a.	Sample holder stage manipulator	<p>Should accommodate sample holders of size ≥ 50 mm dia or option to place at least 5 samples at a time.</p> <p>Must have capability of 5 axes of movement X,Y, Z Tilt and continuous azimuthal rotation.</p> <p>All the five axes must be motorized and must be controllable from the system software.</p> <p>At least three types of sample holders shall be provided for different analysis modes.</p> <p>Inbuilt Standard samples (Au, Ag and Cu) should be provided for calibration</p>
6b.	Sample holders	<p>At least one sample holder ≥ 50 mm dia or better with option to place at least 5 samples.</p> <p>At least one sample holder ≥ 25 mm diameter with slots for powdered or bulk multiple samples of at least 3 or more</p> <p>At least one sample holder for angle dependent studies capable of mounting multiple samples.</p>
7.	Electron energy analyser	The electron energy analyser must comprise 180 degree C hemispherical analyser (HAS) with a mean radius of ≥ 120

		<p>mm.</p> <p>The energy scan range should be at least 10 to 1100 eV or wider.</p> <p>Minimum energy step size at different Pass Energies must be specified.</p> <p>The selectable analysis area of sample must be variable in the range of $\leq 30 \mu\text{m}$ to $\geq 300 \mu\text{m}$.</p> <p>The analyser should be able to acquire XPS measurements in both the spectroscopy and mapping analysis modes with at least 128 channels. Proof for detector channels should be attached.</p>			
8.	Mode of analysis	<p>(a) Type of samples: Should be able to measure all types of samples including magnetic samples.</p> <p>(b) The analyser should have the capability of obtaining chemical maps with lateral resolution of $\leq 30 \mu\text{m}$.</p> <p>(c) Angle resolved XPS capability with take off angle varying from 0 to 90. The results must be consistent among different measuring angles. The angle-resolved capability must be controlled with the specimen stage control and maintaining the original analysis position as the angle is changed.</p> <p>(d) Depth profiling: The instrument must have the capability for efficient and effective depth profiling of inorganic and organic samples using monoatomic Ar ion sputter gun.</p> <p>The monoatomic Ar ion gun should provide ions with variable energy at least between 0V to $\leq 5 \text{ KeV}$.</p>			
9.	Charge Neutraliser system	<p>The instrument must be equipped with a robust charge neutralization system either by using low energy electron only or dual beam charge neutralization system comprising of low energy as well as positively charged ions. Though dual beam charge neutralization will be preferred.</p> <p>Charge neutralization should be possible during depth profiling analysis.</p> <p>The capability of neutralization should be demonstrated on polyethelene terephthalate (PET) with FWHM $< 0.85 \text{ eV}$ for the O=CO peak in the carbon 1s spectrum.</p>			
10.	Sensitivity	<p>The following XPS count rate and energy resolution as a function of analysis area (FWHM of the peak of Ag3d5/2) must be met and demonstrated.</p> <table border="1" data-bbox="586 1843 1385 1877"> <tr> <td>Mandatory</td> <td>Analysis size</td> <td>Resolution</td> </tr> </table>	Mandatory	Analysis size	Resolution
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		<table border="1"> <tr> <td>sensitivity for selected area analysis</td> <td>(diameter)</td> <td>(FWHM of Ag 3d5/2 peak)</td> </tr> <tr> <td>$\geq 200\text{kcps}$</td> <td>$\leq 30.0\ \mu\text{m}$</td> <td>$\leq 1.00\ \text{eV}$</td> </tr> <tr> <td>$\geq 2\text{Mcps}$</td> <td>Large area</td> <td>$\leq 1.00\ \text{eV}$</td> </tr> </table> <p>Vendors should mention their achievable sensitivity. Preference would be given to system which has higher sensitivity.</p>	sensitivity for selected area analysis	(diameter)	(FWHM of Ag 3d5/2 peak)	$\geq 200\text{kcps}$	$\leq 30.0\ \mu\text{m}$	$\leq 1.00\ \text{eV}$	$\geq 2\text{Mcps}$	Large area	$\leq 1.00\ \text{eV}$
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11.	System software	<p>Professional data analysis software for data processing and evaluation together with reference database must be specified and demonstrated. Easy to use software packages must be provided for instrument operation, data reduction and automated analysis. All software must be pre-installed in the computer and supplied with the system.</p> <p>Software must offer full control of XPS operation including X-ray source, vacuum management, charge and neutralizer, sample stage, automatic sample height alignment, automatic depth profiling and sequential angle resolved XPS as well as multi task analysis. All parameters and the sequence of tasks must be possible to be pre defined by the user. For all software and auto controller features, manual over-ride option is essential.</p> <p>The software must be its latest version and allows free update. It must include a comprehensive, integrated package of instrument control, data acquisition and processing.</p> <p>Software should include extensive spectral databases and spectral searching capability for element identification. Data processing should be done on the computer connected to the equipment but also the data processing facility should be made available on several (at least 5 additional licenses) desktop computers for offline data reduction and analysis. Complete data acquisition and analysis (including identification, peak fitting and library) should be possible. Hardware should be latest Window based system with large LCD/LED screen preferably $\geq 23''$.</p>									
12	Automation	<p>The supplied system must include automated features for sample handling, vacuum control and data acquisition allow the spectrometer to be operated in a multi user environment. Remote control operation facility of the instrument from desktop/laptop via internet or wifi. To meet these requirements the spectrometer should include the following functions.</p> <ul style="list-style-type: none"> Automated sample transfer. 									

		<ul style="list-style-type: none"> • Automated vacuum control and gas handling. • Automatic sample height adjustment. • Automatic data acquire for wide scan survey spectroscopy and high-resolution narrow scan data. • Automatic data interpretation and quantification • Automatic data reporting • Automatic calibration.
13	Network ability	<p>The instrument must allow easy network and exporting of data, images, etc.in standardised formats and have comprehensive remote diagnostics built into the hardware and software.</p> <p>The system must have an ability to be controlled remotely within an internal network or via the internet.</p>
14	Computer hardware	Computer system with latest specifications should be provided
15	Accessories	<p>The Instruments should be delivered with all accessories necessary to make it fully operational including a recirculating water chillers and compressor that will enable the XPS system to meet the manufacturer's specification at all time. These should be manufactured by the manufacturer itself or other internationally reputed manufacturer.</p> <p>A complete set of system baking kit for the UHV should be supplied, including baking-jacket, insulation boards, power supply, temperature control, safety devices etc.</p> <p>All the necessary standards used during calibration/ analysis should be provided</p> <p>Online uninterruptible power supply with 1 hour of backup for the entire system (including waterchiller, but excluding bake-out heaters) should be provided.</p> <p>N₂ gas for venting, Argon Gas with regulator, Stainless Steel Line should be supplied.</p>
16	Power supply	Should meet Indian Power standards preferably without use of external converters
17	Protection	The XPS instrument must have a protection from damage at power fluctuation, vacuum and/or cooling water failure.
18	Optional Items	Air-sensitive sample transporter
19	Spare Parts	Spare parts should be provided for trouble free operation upto 2years.
20	Manuals	<p>A complete instruction manual in English both in hard and in electronic version must accompany the equipment.</p> <p>Description of all the main functions and operations of that equipment (XPS) must be included in the manual. <i>Service</i></p>

		<i>manual should also be provided with the instrument.</i>
21	Preinstallation requirement	Complete technical details of pre-installation requirements should be furnished along with the technical bid to ensure quoted performance.
22	Installation, and Commissioning	Installation, complete interfacing of the system with its subsystems, and commissioning is to be carried out by the vendor's factory-trained engineers, followed by a demonstration of the system's performance to the user's complete satisfaction. An estimated time schedule for installation, commissioning and training must be provided.
23	Training	Training (3persons) should be provided at free of cost.
24	Warranty and AMC	Standard 1 year warranty with a minimum of 2 years under AMC which covers 2 Preventive Maintenance Visits and Emergency Repairing Visits as when required.

