



Invitation to tender

No. CeNS/2023-24/Tender of X-ray photoelectron spectrometer

Date: 11 March 2025

The Centre invites sealed tender/bid from your firm for the supply, installation and commissioning of the following scientific equipment.

X-RAY PHOTOELECTRON SPECTROMETER

The tender form in Annexure may be submitted along with relevant fees and earnest money deposit, the terms conditions may be noted before submission of the tender.

1.	EMD (Earnest Money Deposit/Bid Security)	Rs 16,50,000/-
2.	Tender Processing Fee	NA
3.	e-Tender document published date	13th March 2025
4.	Bid documents can be accessed from	https://www.cens.res.in/en/tenders
5.	Clarification start date and end date	13th March 2025
6.	Bid submission start date and time	17th March 2025, 6:00 PM
7.	Bid submission end date and time	21st March 2025, 14:30 PM
8.	Bidopening date	21st March 2025, 16:30 PM



GENERAL INSTRUCTIONS

Centre for Nano and Soft Matter Sciences (henceforth referred to as CeNS) is an Autonomous Research and Development Centre of Department of Science and Technology (DST), Government of India with main campus at Arkavathi, Survey No. 7, Shivanapura, DasanapuraHobli, Bangalore North 562162.

CeNS intends to procure the following equipment. The technical specifications, schedule of requirements, and additional technical details are provided in Part 1 of the tender document..

You are invited to submit your most competitive online quotation via harcopy addressed to The Administration Officer, Centre for Nano and Soft Matter Sciences, Arkavathi, Survey No. 7, Shivanapura, DasanapuraHobli, Bangalore North 562162.

Complete tender can be viewed and submitted through <https://eprocure.gov.in/eprocure/app>.

1. Definitions:

- a. The terms 'Purchaser' shall mean The Administration Officer, Centre for Nano and Soft Matter Sciences, Arkavathi, Survey No. 7, Shivanapura, DasanapuraHobli, Bangalore North 562162.
 - b. The term 'Supplier' shall mean the person, firm or company with whom or with which the order for the supply of Items/Equipment is placed.
 - c. The terms 'Purchase Order' shall mean the communication signed on behalf of the Purchaser by an officer duly authorized intimating the acceptance on behalf the Purchaser on the terms and conditions mentioned or referred to in the said communications accepting the tender or offer of the supplier for supply of Items/Equipment.
2. **Receipt of tender:** The tender must reach by **14.30 hours** on the due date (**21st March 2025**). Late and delayed Tenders will be summarily rejected. The tender must be in an envelope quoting the reference and as well the wordings "**Submission of bid for X-RAY PHOTOELECTRON SPECTROMETER for CeNS**".
The covers for the **technical bid (cover 1)** and **price bid (cover 2)**
3. **Validity of the offer:** (a) The quotation should be valid for a minimum period of 120 days from the date of opening of tender. If the day up to which the offer is to remain open is declared a closed holiday, the offer shall remain open for acceptance till the next working day.
Conditional bids, incomplete tender, tenders without EMD, tenders through email, Fax etc will not be accepted and will summarily reject
4. The Centre reserves the right to accept or reject any or all tenders either in part or in full or to split the order without assigning any reasons therefor. It also reserves the right to cancel the bid without assigning any reasons there for
5. **Opening of the tender:** The Technical bid shall be opened on the date of the tender opening. Price bids of only those firms will be considered for opening whose offer would meet all tender requirements including compliance to technical specifications and has passed all tender conditions/ technical evaluation.



After opening of the price bids, the detailed comparative statement and the finalization of the successful bidder will be done on L-1 (lowest price) basis.

6. **Award of Contract and estimated time of delivery:** The Contract will be awarded to the successful bidder, and the estimated time of delivery is 4-6 months from the issue of the contract (issue of Purchase Order)

TECHNICAL BID - TERMS AND CONDITIONS

1. Vendor qualification criteria:

- (a) Original Equipment Manufacturer (OEM) or authorized representatives of OEM only can quote for this tender. Vendor should submit authorization letter valid on tender date from OEM along with the quotation.
- (b) The OEM should have proven expertise in the manufacture and supply of the item.
- (c) The bidder should have supplied at least 03 or more similar units or equivalent models.
- (d) It is essential that the manufacturer shall provide the list of users of the equipment with contact particulars.
- (e) OEM is required to submit a letter of commitment at the time of quote for the supply of spares and also for efficient and prompt after-sales service of the equipment for a minimum period of 3 years after the guarantee/warranty period under mutually agreed terms and conditions.
- (f) Failure to meet any of the above vendor qualification criteria may lead to the disqualification of the tender at the technical evaluation stage itself, and the vendor's quotation may not be considered for procurement.

2. Pre-dispatch inspection

- (a) The manufacturer/supplier of the unit shall demonstrate, if required, at their works during pre-dispatch inspection by CeNS personnel and shall satisfy all the technical specifications as described in the tender document.
- (b) The manufacturer /supplier of the unit shall demonstrate the features as provided in
- (c) Annexure-I (Scope of supply work).
- (d) All the consumables, raw materials, required for the above demonstration should be arranged by the tenderer.
- (e) All the utilities and manpower required for the demonstration shall be arranged by the supplier only.

3. Acceptance criteria:

- (a) If required, the manufacturer/supplier's trained engineer should carry out installation and commissioning of the unit at CeNS Campus.
- (b) The entire functionality of the equipment according to the specifications should be demonstrated at CeNS campus
- (c) The manufacturer/supplier of the unit shall demonstrate the features as specified in

(d) However, infrastructure for demo will be arranged by CeNS.

4. PATENT RIGHTS:

The Supplier shall indemnify CeNS against all third-party claims of infringement of patent, trademark or industrial design rights, copy rights arising from use of the Goods or any part thereof in India.

5. Training:

The manufacturer shall impart training in the complete unit's operation and preventive/breakdown maintenance, including sub-parts during installation to CeNS personnel at CeNS.

6. Utilities/Infrastructure for installation:

(a) The supplier shall indicate all the required utilities/infrastructure such as power, water, gas, etc including power backup requirements.

(b) Supplier shall provide the overall dimensions of the Unit, including the floor area and height of the site or building, as well as any foundation details necessary to accommodate the Unit.

(c) The operating environment for the Unit including temperature and humidity control, anti- vibration, EMI, EMC etc. should be indicated.

(d) If any charges extra are payable for Installation and Commissioning, the same should be included in the total cost of the stores as per the price schedule (BOQ).

7. Manuals, software and other drawings etc.: The following documents (in English) shall be provided along with the Unit in both hardcopy and softcopy forms:

(a) Operation and maintenance manuals, troubleshooting procedures, calibration methods, wiring and other schematic diagrams, list of components, spares and accessories.

(b) If there are any bought-out systems and components, manuals should be provided in hardcopy and softcopy forms for the same.

(c) Calibration certificates for sensors, instruments, gauges, display units etc. must be provided.

(d) Software upgrades pertaining to the supplied Unit should be provided free of cost as and when new versions are released by the OEM.

(e) Safety and security instruction manual should be provided.

8. After-sales service: The supplier shall guarantee efficient and prompt after-sales service including the supply of the spares for a minimum period of 3 years after the guarantee/warranty period under mutually agreed terms and conditions.

9. Optional items: All bought-out sub-systems and components (optional items) if any should be of reputed make conforming to international standards. Make and details of all bought-out sub-systems and components shall be specified

10. Technical compliance statement: The vendor should provide item wise details against each and every specification. Deviations if any are to be highlighted. Suppliers are required to provide the Technical Compliance Statement as per Annexure – II while submitting the Technical Bid (Cover 1).

11. **Test certificate:** Wherever required, Test Certificate should be sent along with the relevant dispatch documents.
12. **Delivery/ time schedule:** The offer shall be accompanied by a detailed delivery time schedule showing the individual time schedule required for submission of initial equipment layout drawings, foundation drawings along with load data, main equipment and sub-assembly drawing, shipment schedule of the equipment as well as the time for installation, commissioning and performance tests.

Delivery should be up to customs at Bangalore Airport in case of CIP (Bangalore) incoterms.

13. **Packing:** The Supplier shall provide such packing of the Goods as is required to prevent their damage or deterioration during transit to their final destination. The packing shall be sufficient to withstand, without limitation, rough handling during transit and exposure to extreme temperatures, salt and precipitation during transit and open storage. Packing case size and weights shall take into consideration, where appropriate, the remoteness of the Goods' final destination and the absence of heavy handling facilities at all points in transit. In order to maintain safety of the equipment, we prefer to have wooden crating with adequate cushion inside for transportation of any goods. The material has to be dispatched with International standard packing to withstand rigors, and to avoid any transit damages.

14. **Packing Instructions:** Each package will be marked on three sides with proper paint/indelible ink, the following:
 - Purchaser Name & Address
 - Item Nomenclature
 - Order/Contract No.
 - Country of Origin of Goods
 - Packing list reference number

15. **Insurance:** The Goods supplied under the Contract shall be fully insured in Indian Rupees against loss or damage incidental to manufacture or acquisition, transportation, storage and delivery.

For delivery of goods at the purchaser's premises, the insurance shall be obtained by the Supplier in an amount equal to 110% of the value of the goods from "Warehouse to warehouse" (final destinations) on "All Risks" basis including War Risks and Strikes. The insurance shall be valid for a period of not less than 3 months after dispatch or upto installation and commissioning of stores whichever is later. However, in case of orders placed on FOB/FCA basis, the purchaser shall arrange insurance.

16. **Liquidated damages (LD):** As time is the essence of the contract, the work period mentioned in the Service Order should be strictly adhered to. Otherwise, LD clause will be applicable /enforced. If the supplier fails to provide the services mentioned in the order within the stipulated period, CeNS shall without prejudice to any other right or remedy available in law, levy a penalty for such delay by way of liquidated damages, at 0.5% per week of delay or part thereof, subject to a maximum of 10% of contract value. Such LD will be deducted from any amount due or which may become due to the supplier.

17. **Order acceptance:** The successful bidder, on award of contract/order, must send the contract/order acceptance in writing, within 15 days of award of contract.



18. **Award of contract:** CeNS reserves the right at the time of award of Contract to increase or decrease the quantity of items specified in the Schedule of Requirements without any change in price or other terms and conditions.
19. **Corrupt or Fraudulent Practices:** CeNS requires that the bidders who wish to bid for this project have highest standards of ethics. CeNS will reject a bid if it determines that the Bidder recommended for award has engaged in corrupt or fraudulent practices while competing for this contract. CeNS may declare a vendor ineligible, either indefinitely or for a stated duration, to be awarded a contract if it at any time it is determined that the vendor has engaged in corrupt and fraudulent practices during the execution of the contract.
20. Interpretation of the clauses in the Tender Document/Contract Document: In case of any ambiguity/dispute in the interpretation of any of the clauses in this Tender Document, CeNS's and its authorised legal counsel's interpretation of the clauses shall be final and binding on all parties.
21. All disputes are subject to "Bangalore Jurisdiction" only. The decisions of the Centre in all respect shall be final and binding on all. Kindly note that we attach great significance to the list of the organizations of repute where a firm is on rate contract, therefore please enclose certified photocopies of the rate contract. Please ensure that your offer is complete in all respect as no further clarifications shall be sought from you and reaches us within the last date mentioned above. The Institute shall not be responsible for any postal delay / loss in transit etc. Please mention our reference number and due date on the sealed envelope, otherwise your quotation may not be entertained.
22. **Arbitration:** In case of Dispute or difference arising between the Purchaser and a domestic supplier relating to any matter arising out of or connected with this agreement, such disputes or difference shall be settled in accordance with the Indian Arbitration & Conciliation Act, 1996, the rules there under and any statutory modifications or re-enactments thereof shall apply to the arbitration proceedings. The dispute shall be referred to arbitrator appointed by the CeNS. The award of the arbitrator so appointed shall be final, conclusive and binding on all parties to this order.
The venue of the arbitration shall be the place from where the purchase order/contract is issued. Notwithstanding any reference to arbitration herein, the parties shall continue to perform their respective obligations under the Contract unless they otherwise agree.

OTHER TERMS AND CONDITIONS (INSTRUCTIONS)

1. The bidder should submit the bid in one envelope containing two envelopes **Cover 1- Technical bid** and **Cover 2 Price bid**
2. Cover 1 The original hard copies of all the documents must be submitted in an organized and structured manner. No brochures/leaflets, etc. should be submitted in loose form. Please indicate page nos. on your quotation. The price should not be mentioned anywhere in this document.
3. The original hard copies of Technical Bid documents along with supporting documents etc., should be submitted on or before the due date.
4. Price bids should be submitted in a separate sealed cover and must be as per the terms and conditions mentioned in the heading of the commercial bid/price bid
5. The technical offer should be complete to indicate that all products and services asked for are quoted. Each page of the bid and strikeout/corrections shall be duly signed and stamped by the bidder. Unsigned Tenders are liable to be rejected. Failure to comply with this requirement may result in the bid being rejected.
6. The purpose of certain specific conditions is to get or procure the best product/service, etc. for CeNS. The opinion of Technical Committee shall be the guiding factor for technical short listing.

7. The vendor should provide a list of deliverables/bill of materials and services
8. The decision of CeNS is final and binding on all the matters related to the procurement of the item advertised in the tender.
9. **Liquidated damages (LD):** As time is of the essence for the contract, the work period mentioned in the Service Order should be strictly adhered to. Otherwise, the LD clause will be applicable /enforced. If the supplier fails to provide the services mentioned in the order within the stipulated period, the CeNS shall without prejudice to any other right or remedy available in law, levy a penalty for such delay by way of liquidated damages, at 0.5% per week of delay or part thereof, subject to a maximum of 10% of contract value. Such LD will be deducted from any amount due or which may become due to the supplier.
10. **Order acceptance:** The successful bidder, on award of contract/order, must send the contract/order acceptance in writing within 15 days of award of contract.
11. **Award of contract:** CeNS reserves the right at the time of award of Contract to increase or decrease the quantity of items specified in the Schedule of Requirements without any change in price or other terms and conditions.

COMMERCIAL BID/PRICE BID

1. Price Bid should be quoted in **Cover 2 Price bid** the price bid shall comprise the techno commercial bid along with the price component indicating the Unit prices for each and every item indicated in the schedule of requirements (Annexure 1).
2. Prices may be quoted according to the units indicated in the annexed tender form as the total of all essential items, while all optional items may be quoted separately (each optional items price must be indicated).
3. The price should be indicated on a unit basis only. No unilateral revision in price will be admissible.
4. **Terms of payment:** The payment in INR shall be made through NEFT/RTGS after delivery and successful installation of the item
5. In case of foreign supplier Partial LC will be opened in this financial year and balance will be opened in next financial year. Subject to submission of bank guarantee/FDR/DD as security.
6. Duties, Taxes where legally leviable and intended to be claimed should be distinctly shown in the Tender.
7. Duty Exemption: Please note that the Purchaser is eligible for concessional Customs Duty under the Govt. of India Notification No. 11/280/1993-TU-V dated 28 April 2022
8. In case the Items/Equipment offered require maintenance after the expiry of the warranty, the approximate charges for comprehensive as well as on-call basis maintenance should be indicated. Details of availability of local support should also be given.
9. In case any of the subheads are included in the total cost, the same should be specified.
10. Any optional item indicated in techno-commercial bids must be priced separately.
11. Currency in which the price is quoted must clearly be mentioned. Applicable PAN, GST&MSME certificates etc. should be enclosed.



12. Discount: Special discount for educational institutions (if any) shall be mentioned in the price bid.

SCHEDULE OF REQUIREMENTS

Sl. No	Requirements / Parameters/ Parts	Specifications in detail	Technical compliance as per spec given (Yes/No)	Remarks (if any)
Essential items				
1	General Requirement	<p>Monochromated microfocus XPS system with complete automation (except for certain sample transfer manipulations or occasional alignment of components) and state-of-the-art data system enabling:</p> <ul style="list-style-type: none"> • XPS (X-ray Photoelectron Spectroscopy) • XPS mapping • Advanced depth profiling (high resolution) and surface cleaning sputter ion gun • An inert gas ion gun for sputter etching the sample, a C60 or Ar⁺ and Gas Cluster ion beam source for sputtering the sample. • Vacuum transfer module for handling air-sensitive samples • RXPS (Angle Resolved XPS) - tilted mode operation • Minimum 5 software license for processing and analysis • Remote control operation facility of the instrument from desktop/laptop via internet or wifi. Very low data collection time (10 min.) 		
2	Complete system	Ultra High Vacuum Analysis Chamber with following specification: Double-focusing hemispherical energy analyzer, sample manipulator with 4 axes of movement, sample introduction system, sputter ion source for surface cleaning and depth profiling, X-ray monochromator, automated UV source for UPS, flood gun for charge neutralization, water chiller, vacuum pumping system with a base pressure of 5x10 ⁻⁹ mbar or higher after the bake out, UPS back up for pumps and all the spectrometer electronics, all software and computers for a minimum of 30 minutes		
3	Vacuum System	The analysis chamber should be fitted with a turbomolecular pump (250 L/sec for N ₂ or better) with a suitable backing pump and auxiliary titanium sublimation pump (TSP). The TSP should comprise of 3 filaments. The TSP control should allow for the following firing options: auto-degas, timed-fire (operator programmed firing during experiment sequences), and a mode in which it is disabled during data acquisition. The base pressure in the analysis chamber should be 10 ⁻⁹ mbar for better after the bake out.		
4	Sample entry system and sample manipulator	<ul style="list-style-type: none"> • Assisted with turbo-molecular pump (200L/s for N₂ or better) • Sample holder kit • Facility to load multi samples at a time <p>Vacuum Transfer Module: A sample holder capable of transferring samples from a glove box environment to the vacuum system without exposure to air must be supplied. The sample</p>		

SCHEDULE OF REQUIREMENTS

Sl. No	Requirements / Parameters/ Parts	Specifications in detail	Technical compliance as per spec given (Yes/No)	Remarks (if any)
Essential items				
		<p>holder must be able to transfer samples into the vacuum system without operator intervention once the transfer vessel has been introduced into the sample load-lock.</p> <p>Should be fully automated and have at least 5 axes of movement, X, Y, Z, and continuous azimuthal sample rotation.</p> <p>The sample holder and system configuration should allow for an analysis area of 60 mm x 60 mm and a maximum sample thickness of 20 mm.</p> <p>Fast entry airlock (FEAL): This chamber should be made of aluminium and pumped using a turbomolecular pump and a suitable backing pump. The FEAL should be connected to the analysis chamber via an automated (low shock) gate valve. Transfer of the sample holder into the analysis chamber should be fully automated and integrated to the spectrometer's vacuum control software to preserve UHV conditions. A combination gauge should be supplied to measure the chamber pressure, and used to control the automatic sample transfer via the data system. A non-out-gassing sample must be transferred from the FEAL to the analysis chamber in less than 10 minutes from the start of pumping.</p>		
5	Detector	Multi-channel detector with at least 128 channels for high sensitivity XPS. The detector should support a parallel 'snapshot' acquisition mode of operation for rapid data acquisition. Due to the need for high sensitivity at high spatial resolution, the instrument should be supplied with a large acceptance lens ($\geq 60^\circ$)		
6	Analyzer	<p>Electron Energy Analyzer with software package</p> <p>A hemispherical electron energy analyzer of 120 mm mean radius with minimum 128 channels detection, pulse counting unit with energy scan range between 100 to 1400 eV or wider with a minimum energy step of 5 meV or better.</p> <p>Analyzer control unit possessing the following count rates, at the specified resolution:</p> <p>Sensitivity ≥ 6.0 mcps@1.0eV (≥ 2.0 mcps@0.6eV) of the Ag 3d_{5/2} peak, at a resolution 0.5 eV (FWHM) or better, measured after removal of a linearly interpolated background and using an X-ray spot size of 400 um and an X-ray power less than 100 W. Binding energy range 372 eV to 365 eV.</p>		

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Sl. No	Requirements / Parameters/ Parts	Specifications in detail	Technical compliance as per spec given (Yes/No)	Remarks (if any)
Essential items				
		<p>Sensitivity ≥ 400 kcps@1.0 eV (≥ 200 kcps@0.6 eV) of the Ag 3d_{5/2} peak, at a resolution of ≤ 1.0eV (FWHM), measured after removal of a linearly interpolated background, and using an X-ray spot size of 20 μm and an X-ray power less than 3 W. Binding energy range 372 eV to 365 eV.</p> <p>Sensitivity ≥ 100 kcps@1.0 eV (≥ 50 kcps@0.6 eV) of the Ag 3d_{5/2} peak, at a resolution of ≤ 1.0eV (FWHM), measured after removal of a linearly interpolated background, and using an X-ray spot size of 10 μm and an X-ray power less than 3 W. Binding energy range 372 eV to 365 eV.</p> <p>Both spot size and sensitivity should be determined with the sample normal parallel to the axis of the transfer lens. Specifications should be demonstrated using the anode power recommended for routine analysis at each spot size.</p> <p>Operating mode: Constant Analyser Energy (CAE)</p>		
7	Source for X-Ray	<p>Micro focused Monochromated X-ray source: Electron source: 12 keV nominal operating voltage The instrument must have excellent energy resolution for chemical state analysis and a guaranteed full width at half-maximum energy resolution on Ag 3d_{5/2} peak of 0.50 eV or better. The monochromator should include an electron suppression device to reduce the number of unwanted high-energy electrons reaching the sample analysis position. The quartz crystal monochromator goniometer should be motorized for automated or remote access X-ray spot alignment. To minimize X-ray-induced sample damage, the large area X-ray spot should have a power of less than 100 W. The monochromator control electronics and software should include auto-degassing and filament conditioning routines.</p>		
8	X-ray spot size	<p>X-ray spot should be user selectable and variable in the range of 10 μm to 400 μm with simple computer command. The X-ray spot size selection should be variable in 5 μm steps from the smallest to largest spot to facilitate matching the analysis area to the feature of interest.</p>		
9	Source for UPS	<p>Automated UPS Source for Helium I / Helium II for valence band spectroscopy: A gas discharge source capable of operating with noble gases must be supplied. All differential pumping, gas handling and source operation must be automated, so that it can be operated from the data system, and used within complex experiments</p>		

SCHEDULE OF REQUIREMENTS

Sl. No	Requirements / Parameters/ Parts	Specifications in detail	Technical compliance as per spec given (Yes/No)	Remarks (if any)
Essential items				
		such as depth profiles. The standard operation must be configured for use with helium, with the data system able to automatically start the lamp and operate in He(I) or He(II) modes. UPS performance must be demonstrated on a clean silver sample. Under identical spectroscopic conditions, a count rate of ≥ 2.0 mcps must be demonstrated when the resolution at the Fermi edge is < 120 meV. Resolution is defined as the energy difference between the points at which the intensity is 20% and 80% of the maximum value below the Fermi level.		
10	Flood gun Charge neutralizer system	<p>The system should provide excellent charge compensation on non-conductive samples, even when analyzing small areas. A system based on a combination of low energy ions and electrons is required. The ions and electrons should be produced from a single source. A single mode of operation should provide optimum neutralization for all sample and experiment types. The flood control should include automated Ar gas handling. The spectrometer data system should include both automatic filament degas and conditioning routines.</p> <p>The neutralization scheme shall effectively stabilize the surface potential of nonconductive specimens, and not cause damage to the specimen surface. This shall be demonstrated by performing an X-ray Photoelectron Spectroscopy measurement on a poly(ethylene terephthalate) [PET] polymer film, furnished by the Supplier.</p> <p>The measurement is described: No external mask on specimen surface, C 1s peak measured from 300 to 280 eV for 5 minutes, Background subtract, FWHM ≤ 0.85 eV for the O=CO component. The measured position of the C-H component at binding energy in the range 280-290 eV (before any mathematical shift applied).</p>		
11	Argon ion source for depth profiling and specimen cleaning	Differentially pumped Ar ion sputter source with beam energy of 200 eV -4 keV or better with option of using Ar, He, Ne, Xe gases. Beam current of 4 uA or higher at 3 keV, spot size @ 3.5 uA and 3 keV should be 500 um or similar. Routine continuous operation at the maximum voltage and maximum current shall not be deleterious to the power supply.		
12	Automation	The supplied system must include automated features for sample handling, vacuum control, and data acquisition, allowing a spectrometer to be operated in a multi-user environment along with		

SCHEDULE OF REQUIREMENTS

Sl. No	Requirements / Parameters/ Parts	Specifications in detail	Technical compliance as per spec given (Yes/No)	Remarks (if any)
Essential items				
		<p>other analytical techniques. 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. • 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 • Automated source outgassing • Automatic calibration. 		
13	Sample viewing and alignment	<p>This is essential for small area XPS. The sample navigation tool should support several camera views to facilitate all sample navigation operations. To fulfill this requirement the following sample views are required</p> <ul style="list-style-type: none"> • A full sample platter view for sample to sample translation. • A real time magnified image of the sample giving a plan view of the sample. This view should have a maximum field of view of 5 mm x 4 mm. This camera should support digital zoom, providing a magnification of x8. • A higher magnification microscope camera for accurate sample height setting • A rapid mapping capability that can generate fast XPS images over areas of 0.5 mm² - ≤2 mm², which can be used to define analysis positions. 		
14	Operational Software-Data Analysis	<p>The data system should include a comprehensive package of data acquisition and processing software for XPS, including depth profiling, line scans and maps and peak fitting. A built-in database of XPS information and spectra should be included. The data system should include routines for automatic data acquisition and reporting. Simple pasting of data, tables, charts, and images from the data system into other applications must be facilitated.</p>		
15	Vacuum transfer module	<p>The vacuum transfer module must allow samples that have been prepared in an inert environment to be transferred into the spectrometer chamber without exposure to air.</p>		

SCHEDULE OF REQUIREMENTS

Sl. No	Requirements / Parameters/ Parts	Specifications in detail	Technical compliance as per spec given (Yes/No)	Remarks (if any)
Essential items				
16	Computer control	The data system must be capable of controlling and automatically recording the X-ray spot size, all settings of the analyzer and transfer lens, all flood gun settings, and all settings of the ion gun. The data system must have full control of the sample stage for multi-point analysis, azimuthal and compucentric depth profiling, line scans, and maps. Routines should also be included for full automatic spectrometer calibration, X-ray spot size measurement, ion gun alignment, and source conditioning. To complement these routines, position indexed standards (Cu, Ag, Au) must be available at all times in the analysis chamber. The routines should have the capacity to align and prepare standard samples before acquiring data.		
17	PC and monitor	OS: Windows 11 Professional Processor: Intel processor Memory: 32 GB Data storage: 1TB SSD x 2 Media drive: Super multi drive Monitor: 32-inch LCD		
18	Calibration and alignment	The instrument should offer auto calibration for the following functions: <ul style="list-style-type: none"> • Energy scale linearity • Transmission function • X-ray spot size calibration • Ion gun modes tuning and alignment • Flood gun alignment • Electron lens optimisation • Detector optimization 		
19	Bake out of the entire system	The bake-out shielding should be integrated into the system housing. Bakeout can be performed without removing the cables. Bakeout should be hassle free, the system should be baked even with remote access on the data system.		
20	Recommended spare parts /Consumables	All recommended set of spares and consumables for 3 years operation. (Please provide a complete list of spares with item-wise price)		
21	Training and Installation	Free of Cost at customer site for 1 week		
22	Warranty	3 years standard		



CENTRE FOR NANO AND SOFT MATTER SCIENCES
Arkavathi, Shivanapura, Bengaluru North 562 162

Annexure I

Sl. No	Requirements / Parameters/ Parts	Specifications in detail	Technical compliance as per spec given (Yes/No)	Remarks (if any)
		OPTIONAL ITEMS		
23	Vacuum suitcase (Optional)	1 No The vacuum transfer module must allow samples that have been prepared in an inert environment to be transferred into the spectrometer chamber without exposure to air.		
24	Local supplies (Optional)	15 KVA uninterrupted power supply, Compressed air, N ₂ gas for venting, Argon Gas with regulator, Stainless Steel Line.		
25	Operator (Optional)	Operator for a period of 3 years		
26	Inverse photoelectron spectroscopy (IPS) (Optional)	Inverse photoelectron spectroscopy (IPS)		
27	REELS (Optional)	Reflected Electron Energy Loss Spectroscopy to provide information about band gaps, defect states.		
28	Secondary anode (Optional)	Cr K alpha		



Declaration by the Vendor
(to be provided in the following format in their letterhead)

I/We, the undersigned, declare that we have read and reviewed all the terms and conditions of the tender document to which we have affixed our signatures and submitted under proper authorization. We certify that all terms and conditions of the tender document are fully acceptable to us, and we will adhere to the conditions outlined in the tender. We have not included any printed conditions that go beyond the scope of this tender. Furthermore, we certify that neither I/we nor our firm has any objections to signing the contract if we are awarded the opportunity to carry out the work associated with this tender.

Signature:

Date:

Name:

Designation:

On behalf of:

Address: