To Whom It May Concern

Global Tender notification to supply and Installation of Scanning Electron Microscope at MNCF, CeNSE, IISc Bangalore

(Last date of submission of tenders: 22nd August 2025)

This is an RFQ (Request for Quote) for procurement of a Scanning Electron Microscope(SEM) as part of a global tender for the Centre for Nano Science and Engineering (CeNSE) at IISc, Bangalore.

CeNSE is a multidisciplinary research department at IISc that houses a 14,000 sq. ft. cleanroom and a 7,000 sq. ft. characterization facility, used by more than 125 faculty members from various disciplines at IISc. CeNSE also runs several training programs, such as the Indian Nanoelectronics Users Program (INUP), which has enabled over 6,000 participants from more than 700 universities and institutes across India to access and utilize CeNSE facilities. Consequently, any tool in CeNSE receives significant exposure to the scientific community at IISc and beyond. The vendors are requested to factor in the value of this exposure into their quotes. Details of existing facilities and INUP program can be found from:

http://www.mncf.cense.iisc.ac.in/

http://nnfc.cense.iisc.ac.in/

https://www.inup.cense.iisc.ac.in/

Also, CeNSE hosts equipment on behalf of vendors, as a national standard or 'model' system. If the vendor is interested, CeNSE can consider working out a similar arrangement for the Scanning Electron Microscope system.

Best quotations valid for 120 days are invited for the supply and installation of Scanning Electron Microscope at MNCF, CeNSE, IISc Bangalore. Your quotations should indicate the terms and conditions of the quotations, delivery, delivery schedule, estimated delivery date, entry tax, payment terms, warranty coverage, etc. The tender should be submitted in two separate sealed envelopes. one containing the "Technical bid" and other containing the "Commercial bid", both of which should be duly signed and must reach the undersigned on or before 17:00 hours 22nd August 2025. C.I.P. Bangalore basis (by Air Freight only).

The bids should be addressed to:
The Chairperson,
Centre for Nano Science and Engineering
Indian Institute of Science
Bangalore – 560012, India
With attention to: Dr. Suresha S J

Please enclose a compliance statement along with the technical bid.

Section 1 - Bid Schedule

1	Tender No	
2	Tender Date	01st August 2025
3	Item Description	supply and installation of Scanning Electron Microscope at MNCF, CeNSE, IISc Bangalore.
4	Tender Type	Two bid system 1. Technical Bid (Part A) 2. Commercial Bid (Part B)
5	Place of tender submission	CeNSE Office, GF-15, Centre for Nano Science and Engineering, Indian Institute of Science, Bangalore 560012,
6	Last Date & Time for submission of tender	22nd August 2025
7	For further clarification	Dr. Suresha S J MNCF Centre for Nano Science and Engineering Indian Institute of Science, Bangalore 560012 Email: sureshasj@iisc.ac.in Phone: +91 80 2293 3253

Section 2 – Eligibility Criteria

Prequalification criteria:

1. Only the Original Equipment Manufacturer or their authorized representatives across the globe shall participate in the bid.
2. The order will be placed only on the bidder who participated in the bid.
3. The Bidder's firm should have existed for a minimum of 5 years. (Enclosed Company Registration Certificate)
4. The Bidder should have qualified technical service personnel for the instrument(s) based in India.
5. If the Bidder is a local distributor/dealer/Agent, attaching an authorization certificate with the technical bid from the original equipment manufacturer is mandatory.
6. The bidder should sign and submit the declaration for Acceptance of Terms and Conditions as per -Annexure 1.
7. The Bidder must not be blacklisted/banned/suspended or have a record of any service-related dispute with any organization in India or elsewhere. A declaration to this effect has to be given as per Annexure 2.

Section 3 – Terms and Conditions

1. Submission of Tender

1. All documentations in the tender should be in English.
2. The tender should be submitted in two envelopes (two-bid system).
    a. Technical Bid (Part-A) – Technical bid consisting of all technical details and a checklist for conformance to technical specifications. The technical proposal should contain a technical compliance table with 5 columns.
        i. The first column must list the technical requirements in the order given in the technical requirement below.
        ii. The second column should provide specifications of the instrument against the requirement. Please provide quantitative responses wherever possible.
        iii. The third column should only describe your compliance with a "Yes" or "No". Ensure that the entries in column 2 and column 3 are consistent.
        iv. The fourth column should state the reasons/explanations/context for any deviations.
        v. The fifth column can contain additional remarks from the OEM. You can use this opportunity to highlight technical features, qualify response of previous columns, provide further details, compare your solution with your competitors or provide details as requested in the technical requirements table below. (Suppliers who include any indication of prices in the technical bid will be automatically disqualified).
        vi. Any additional capabilities or technical details, that you would like to bring to the attention of the purchase committee, can be listed at the end of the technical table.
    b. Commercial Bid (Part-B) –
        i. Indicate item-wise price for the items mentioned in the technical bid, as per the quotation format provided in the tender, and other commercial terms and conditions.
        ii. As an option, please provide itemized cost for any suggested accessories/add-ons that may enhance the usability, capability, accuracy or reliability of the tool. Vendors are encouraged to quote for as many add-ons as their tool portfolio permits.
        iii. Mention itemized cost of the system, all components, optional items, and required accessories, such as software, power supply, etc. Provide certificates for the country of origin of manufacturing for each line item. The price of every line item in the commercial bid should be quoted along with the total quoted price for the instrument to be operational (installed and ready to use) in our facility.
3. The technical and price bids should each be placed in separate sealed covers, superscribing the tender no. and the due date on both the envelopes. Both these sealed covers are to be placed in a bigger cover, which should also be sealed and duly superscripted with the Tender No, Tender Description & Due Date.
4. The SEALED COVER superscribing tender number / due date & should reach CeNSE Main Office, GF-15, Centre for Nano Science and Engineering, Indian Institute of Science, Bangalore 560012, India on or before the due date mentioned in the tender notice. If the due date happens to be a holiday, the tender will be accepted and opened on the next working day. If the quotation cover is not sealed, it will be rejected.
5. If multiple systems can fulfil the requirements, vendors can submit multiple bids.

6. Mention the warranty provided with the tool.
7. All electronics and instruments must be covered under the warranty. Clearly indicate any part that is not included in the warranty.
8. If parts need to be shipped back to OEM for repair, the bidder should be responsible for the repair and return
9. The technical proposal will be evaluated against the technical requirements. Only vendors who meet the technical requirements will be considered for the commercial comparison and negotiation.
10. The decision of the purchase committee on the execution and evaluation of the tender, is absolute and final.
11. The technical proposal must include references of at least 5 previous installations done in India within last 5 years of similar equipment from the equipment manufacturer. Please provide the names and contact addresses of the referees, so that the committee can contact them independently. Please provide the installation report
12. We encourage vendors to give technical presentations, physically or online, so that we can better understand the technical capabilities of their tools and vendors can better understand the requirements.
13. All queries are to be addressed to the person identified in "Section 1 – Bid Schedule" of the tender notice.
14. GST/other taxes, levies etc., are to be indicated separately. The BIDDER should mention GST Registration and PAN in the tender document (Indian Bidders only).
15. If price is not quoted in Commercial Bid as per the format provided in tender document the bid is liable to be rejected.
16. The vendor should have qualified technical service personnel for the equipment based in India and should assure a response time of <48 hours.
17. A technical evaluation by the purchase committee may include a demonstration to verify the functionalities and capabilities of the system quoted. The purchase committee reserves the right to reject the bids based on their technical evaluation of the quality of data, capability demonstration, and service. If the data/requested capability demonstration does not happen within a stipulated timeframe, the bid will be rejected. Any discrepancy between the promised specifications and measurements will be deemed as technical non-compliance.
18. Imported items should be shipped on C.I.P. Bangalore basis (by Air Freight only), and all components and accessories indicate component-wise and itemized breakup. Provide certificates for the country of origin of manufacturing for each line item. The price of every line item in the commercial bid should be quoted along with the total quoted price for the instrument to be operational (installed and ready to use) in our facility.
19. The purchase committee reserves the right to accept or reject any bid and to annul the bidding process and reject all bids at any time before the award of contract, without thereby incurring any liability to the affected bidder or bidders or any obligation to inform the affected bidder or bidders.
20. Incomplete bids will be summarily rejected.
21. The decision of the purchase committee will be final.

2. Cancellation of Tender:

Notwithstanding anything specified in this tender document, the IISc purchase committee, in its sole discretion, unconditionally and without having to assign any reason, reserves the rights:

1. To accept OR reject the lowest tender or any other tender or all the tenders.
2. To accept any tender in whole or in part.
3. To reject the tender, if it does not conform with the terms.

4. Validity of the Offer:

The offer shall be valid 120 Days from the date of opening of the commercial bid.

5. Evaluation of Offer:

1. The technical bid (Part A) will be opened first and evaluated.
2. Technical data, including the quality of images and capability demonstration, will be considered.
3. Bidders meeting the required eligibility criteria as stated in Section 2 of this document shall only be considered for Commercial Bid (Part B) opening. Further, agencies not furnishing the documentary evidence as required will not be considered.
4. Pre-qualification of the bidders shall not imply final acceptance of the Commercial Bid. The agency may be rejected at any point during technical evaluation or during commercial evaluation. The decision regarding acceptance and/or rejection of any offer in part or whole shall be the sole discretion of IISc Bangalore, and the decision in this regard shall be binding on the bidders.
5. The contract award will be subject to acceptance of the terms and conditions stated in this tender.
6. Any offer which deviates from the vital conditions (as illustrated below) of the tender is liable to be rejected:
    a. Non-submission of complete bids.
    b. Receipt of bids after due date and time or by email/fax (unless specified otherwise).
    c. Receipt of bids in open conditions.
7. If any BIDDER is silent on any clauses mentioned in these tender documents, IISc Bangalore shall construe that the BIDDER had accepted the clauses as of the tender, and no further claim will be entertained.
8. No revision in the terms and conditions quoted in the offer will be entertained after the last date and time fixed for receipt of tenders.
9. The lowest bid L1 will be calculated based on the total price of all items tendered for Basic equipment along with accessories selected for installation, selected optional items, recommended spares and warranty.

6. Purchase Order:

1. The order will be placed on the bidder whose bid is accepted by IISc based on the terms & conditions mentioned in the tender document.
2. The quantity of the items in the tender reserves the right to increase /decrease the quantity of the items depending on the requirement.
3. If the quality of the product and service provided is not satisfactory, IISc, Bangalore reserves the right to cancel or amend the contract.

7. Delivery, Installation and Training

1. The bidder shall provide the lead time to delivery, installation and made functional at IISc, Bangalore, from the date of receipt of a purchase order.
2. **The system should be delivered, installed and made operational within 90 days from receipt of the purchase order.**
3. The supply of the items will be considered as effected only on satisfactory installation and inspection of the system and inspection of all the items and features/capabilities tested by the IISc, Bangalore.
4. After successful installation, the handover date shall be the start of the warranty period.
5. No partial shipment is allowed.
6. The bidder should provide onsite application training for the local facility technologists and users.
7. The bidder should also arrange technical training for the local facility technologists and users.

8. Payment Terms:

The payment will be through a Letter of Credit and the milestone of the payment will be determined after mutual discussions with the successful bidder.

10. Statutory Variation

Any statutory increase in the taxes and duties subsequent to bidder's offer, if it takes place within the original contractual delivery date, will be borne by IISc, Bangalore subject to the claim being supported by documentary evidence. However, if any decrease takes place the advantage will have to be passed on to IISc, Bangalore.

11. Disputes and Jurisdiction

Any legal disputes arising out of any breach of contract pertaining to this tender shall be settled in the court of competent jurisdiction located within the city of Bangalore, India.

12. General:

1. All amendments, time extension, clarifications etc., within the period of submission of the tender will be communicated electronically. No extension in the bid due date/time shall be considered on account of delay in receipt of any document(s) by mail.
2. The bidder may furnish any additional information, which is necessary to establish capabilities to successfully complete the envisaged work. It is however, advised not to furnish superfluous information.
3. The bidder may visit the installation site before submission of tender, with prior intimation.
4. Any information furnished by the bidder found to be incorrect, either immediately or at a later date, would render the bidder liable to be debarred from tendering/taking up of work in IISc, Bangalore.

Section 4 – Technical Specifications

1.	Primary application	The tool will be used to study surface morphology, phase contrast images of various materials including and not limited to semiconductor wafers and devices, nano materials, cross section analysis of thin films. Samples would include conducting and non-conducting type. a) Ability to distinguish organic(polymers) from inorganic (semiconductors, metals, dielectrics etc.,) materials b) As an option, the capability to image biological samples at low vacuums Ability to image magnetic samples at low working distances without interference or distortion caused by the objective lens magnetic field.
2.	Electron Source	c) FEG source (Schottky / Cold FEG with 5 yr warranty)
3.	Probe current	d) High probe current gun system: minimum of 0.3 nA or less to maximum of 100 nA or higher
4.	Resolution	e) 0.6 nm or better @15kV f) 0.7 nm or better @1 KV g) 1 nm or better @500V h) Please, provide all options to achieve this resolution
5.	Magnification	i) 20x to 1000000x or better

6.	Accelerating voltage	j) 0.02KV or less to 30kV in steps of at least 0. 01 kV
7.	Vacuum System	k) High-vacuum chamber with base pressure lower than 10^{-5} mBar
8.	Electron Optics, Lenses	l) The system must have magnetic/electrostatic objective/compound lens or equivalent lens assembly for high resolution imaging of ferromagnetic and other materials with working distance of 2 mm or less. The lenses should be thermally stabilized.
9.	Detectors:	m) In column/in-Lens SE detector n) chamber mounted ET SE detector. o) In column/in-Lens BSE detector p) Chamber mounted BSE as an option q) Nematically retractable STEM detector (BF/DF imaging) as an option
11.	EDS Detector (Optional)	r) **<u>As an option, EDS</u>** with following specifications: s) EDS should be a state of art system designed to work in compliance with ISO 15632:2012 t) The EDS detector should be LN2 free type SDD sensor based having sensor area of at least 100 mm^2 or more with the following published energy resolution to be guaranteed at site: a. Mn-kα : <127eV at count rate of 100,000cps b. F-kα : < 65eV at count rate of 100,000cps c. C-kα : < 58eV at count rate of 100,000cps u) The EDS Detector and associated electronics should be so stable that the shift in peak Position and Resolution should <1eV over 100,000cps. v) The EDS system software should have the following features in real time mode. a. Live Imaging in real time b. Live Spectrum in real time c. Live Auto peak labelling in real time d. Live Mapping in real time e. Live Trace shows sample scanned areas with concentration distribution for each element. w) Navigator based EDS software designed to do Qualitative and Quantitative analysis based on x) Point&ID, Line Scanning, Mapping with spectral imaging to reconstruct EDS spectrums from stored Map data. Built-in reporting Templates, Simultaneous imaging and analysis on the EDS monitor. y) Mapping: Drift Corrected, Quantitative line and area mapping should be included z) For standardless Quantitative analysis especially at Low kV, the EDS system software should have built-in internal standards acquired at low kV (5kV or less).
12	CL detector (Optional)	aa) Please quote Cathodoluminescence detector as an option with bb) Panchromatic Cathodoluminescence Imaging and spectroscopy System

		cc) The CL detector should be compact and miniature type and provide panchromatic CL images and spectroscopy dd) Wavelength range 185 – 1500 nm. • Live Color Cathodoluminescence Imaging System . The system should provide colour- cathodoluminescence (CL) images in a single scan of the electron beam i.e. simultaneous acquisition of red, green and blue cathodoluminescence colours • Ability to observe colour CL images live
13	Additional optional add Ons	a) **Electrical probing with micromanipulator (Optional):** Three-axis micromanipulator system for electron microscopy. The system includes control electronics, a joystick/joypad, software, tip holders for probe tips, sample probe tips, a vacuum feed through, along with low-current, low-capacity measurements on conductive samples b) **Mechanical stretching/Tensile stage (Optional)**: In-Situ-Stage for tensile experiments at room temperature. Please include flat sample jaws, electrical feedthrough kit and Sofware to control the stage and acquire data with Load cell for forces up to 200 N, load cell for forces up to 1000 N., Load cell for forces up to 5000 N. c) I**n-situ picoindentation testing system (Optional)**: In-situ pico indentation/nano-scratch testing with load range of 10 mN to 3.5 N with displacement upto 150 μm, Sample positioning sensitivity of 1nm or better. Automated indentation capability of a large area of at least $1mm^2$. **d) Optical fiber integration/Optical window as an option** **e) As an Option, High resolution sputter coater and high vacuum (turbomolecular pumped) carbon evaporator** suitable for coating SEM Samples. The coaters should provide the flexibility for changing the sputtering current and time in order to control the coating thickness. **f) As an option, please quote the Electron Backscatter Diffraction (EBSD) detector.** The EBSD system should be a high-sensitivity, high-speed CMOS-based detector capable of acquiring ≥500 indexed patterns per second with an effective pattern size of at least 800×600 pixels and spatial resolution ≤50 nm at 20 kV. It must support real-time pattern enhancement, automated pattern center calibration, and simultaneous EDS+EBSD acquisition. The software should enable orientation, phase, grain boundary, strain, and KAM mapping, with automated drift correction for long scans and export in standard formats (.ang, .ctf, ASCII). Should have Electron Channeling Contrast Imaging (ECCI) capability for high-resolution crystallographic defect analysis. The system must allow direct imaging of dislocations, stacking faults, and other crystal defects on bulk samples without the need for extensive sample preparation. The ECCI mode should be compatible with the SEM's electron optics and detectors, enabling clear orientation-dependent contrast and integration with EBSD for complementary crystallographic analysis.The system should be compatible with short working distances for combined EDS/EBSD analysis, include a high-performance PC with GPU acceleration, and

		come with 5-year comprehensive warranty and on-site training for 4–5 users. g) **Wavelength Dispersive X-ray Spectroscopy Detectors (WDS) as an option** for advanced elemental analysis. The WDS must offer ≤10 eV spectral resolution and be capable of detecting elements from Boron (Z=5) to Uranium (Z=92) with detection limits down to 10 ppm. It should support multi-crystal spectrometers (TAP, PET, LIF, LDE or equivalent) for a wide X-ray energy range and allow simultaneous multi-channel acquisition at ≥100 kcps per channel. The system should enable high-resolution elemental mapping, precise detection of low-concentration or overlapping elements, and fully integrate with EDS and EBSD for correlative analysis. The software must provide live spectral acquisition, peak deconvolution, background subtraction, standardless and standards-based quantification, and automated drift-corrected mapping. h) As an option, please quote **Charge Contrast/Voltage Contrast (CC/VC) detector** capable of detecting variations in local surface charging and voltage distribution for **f**ailure analysis of semiconductor and MEMS devices. The detector should allow visualization of open and short circuits, leakage paths, and charge-trapping regions without damaging the device, and should support in-situ biasing experiments. The system must provide high sensitivity for both insulating and conductive samples to enable accurate device diagnostics. i) As an Option, please quote Electron **Beam Induced Current (EBIC) for** semiconductor device and MEMS failure analysis. The system must include an EBIC detector and necessary signal processing electronics to measure and map induced currents from p–n junctions and electrically biased devices. It should enable localization of leakage paths, open or short circuits, and defects, as well as characterization of depletion regions and minority carrier diffusion lengths. The EBIC module should be fully integrated with the SEM imaging system for simultaneous current mapping and electron imaging.
14	Chamber	• Variable or low vacuum mode to allow imaging of non-conductive samples (300 Pascals or higher) as an option. • 5 axis eucentric motorized stage • Motorized Stage travel minimum of X axis 100 mm, Y axis 100 mm, Z axis 40mm, Tilt -4 to 70 deg or better, Rotation 0-360 Deg, give all available options • Stage position readouts for each axis, along with safety features to avoid collision • Chamber mounted IR camera for optical view (stage movement and navigation aid) • Fully automated Vacuum control along with required safety features along with readouts for Vacuum and SEM status. • Pump down time (PDT) less than 4 mins or better. • Sample holder should be able to handle at least 100 mm wafer

		• Sample holders for single and multiple stubs – Standard sample holder along with a option have stubs of various sizes (flat/angled), single/multiple stubs. • Additional access port possible (If we were to upgrade), give as option • Mention the total number of available ports • min max Weights the stage can handle to be specified
15.	Software	• Multi user GUI environment • Complete package of software to effectively manage and operate the system should be included • Interlock that can interface with the online reservation system, so that the tools can only be used by authorized users. • Complete logs of all the process and system parameters to be available and stored for future trouble shooting • Software needs to be supported with upgrades (including OS) for the lifetime of the tool. • OS should be latest/new version software, with compatible workstation including 24" Display(s) or higher • Appropriate Image editing software, language should be English. • Appropriate hardware and software for image storage and analysis. • Stage navigation system. • The software must allow varying levels of instrument access. A simplified basic access for a user to a full access to an engineer. • User calibration, point to point measures, Angle and other image measurements must be possible • Annotations, including but not limited to Scale bar, SEM data, Date time and detector information. • Images must be saved with resolution of 1024*768 or higher in BMP/TIFF/JPEG. • Image processing features like different scan rates, integration continuous averaging. • Auto focus/stigmation corrections. • The SEM shall include a dedicated panel with knobs for controlling magnification, focus, and other frequently altered settings (e.g., image brightness, image contrast, and astigmatism correction), This dedicated panel may replace or duplicate control settings adjustable using a computer-driven microscope control interface • Facility/software for particle size measurement • Software must be provided will manuals detailing all the features available • CPU: Minimum 1tb hd capacity Latest compatible branded high-speed computer with preloaded licensed software for SEM operating parameters. Detailed specifications of the workstation to be provided • Specify the date the tool was launched and the period till which the software will be supported. • Servicing facility for computer related problems should be provided. • Specify computer speed, processor, RAM and graphics card. • All the computers for SEM, must be imported factory fitted and tested with pre-loaded software's for operating these systems

16	Tools	• Dry Vacuum pumps, Turbopumps preferred • The SEM shall include a separate monitor displaying the acquired image over nearly the entire viewing area, This image display monitor shall be included in addition to a monitor displaying the microscope condition and control functions(optional) • Image mode should be – secondary electron image, back scattered image (composition, topography and stereoscopic image) • The SEM controller tools shall include the following capabilities: 1. Variable scan rate for fast focusing image updating, (Allows focus to be adjusted quickly while maintaining a slow scan rate or continuous averaging for low-noise imaging) 2. Beam spot control 3. User-calibratable, on-screen, point-to-point distance measuring. (Extremely useful for specimen feature dimensions) 4. User-calibratable, on-screen, line-to-line distance measuring, (Extremely useful for specimen feature dimensions) 5. Electronic image rotation and shift, (Useful in conjunction with line width measurement if the line width tool is not rotatable) • The supply of spares must be guaranteed for 10 years from the date of Installation • Operation table • Standard sample for Calibrations for image resolution as well as for EDS to be provided. • Multi-stub sample holders (4 numbers) • 45°, 70-degree pre-tilt holders (4nos. each) • Spare Stubs (100 numbers)
17	Footprint & weight	• Please specify the total foot print in cm x cm, and weight. • All site requirements must be clearly mentioned.
18.	Periodic Maintenance	The system should require minimal maintenance. Mention the recommended preventive maintenance schedule for the system. Any accessories needed for periodic preventive maintenance for 5 years, e.g., O-rings, Sealers, etc, should be mentioned separately in the itemized quote. Can the preventive maintenance be done by a trained on-site engineer or requires a specialist from the OEM? If the latter, please provide the cost of a 5-year AMC with the required kit/consumables. The system should be supported by a trained local representative and should have a 48 hour window of response
19.	Installation and Training	• Installation and training at customer site, by the experts from principals should be part of the package. • During the installation all the specifications of the processes should be verified for acceptance by the customer. • If periodic maintenance can be done by the on-site engineer, please include the cost of training the engineer. • Pre-installation requirements such as room size, tolerable limits of EM field and vibration (mechanical), required power rating, utility requirements are to be stated clearly, and to be verified/surveyed by the supplier at the installation site. It is the supplier's responsibility to

		clearly provide details of the above-mentioned requirements before delivery of the equipment. Necessary environmental requirements, i.e., temperature, humidity etc during the operation of SEM should be specified clearly. The operator should be not only trained in operating but also know the installation requirements for smooth uninterrupted functioning of the SEM
20.	Power & utilities	• The instrument should work with Indian standards • Mention the power requirement. • Mention any utility requirement (water, air, exhaust, etc.) • The vacuum system shall utilize mechanical roughing pump(s) and turbomolecular pump(s) (both should be oil free); • If a chilled water loop is required for microscope cooling, the customer shall have the option of selecting an air-cooled chiller or water-cooled chiller
21	Safety	• Mention any special safety requirement of the tool • The tool must come with a complement of interlocks to prevent common user errors. • Any malfunction should have an audible alarm system. • Flashing lights during emergencies should also be an option
22	Recommendation	• The system must submit references from at least 5 previous installations • The names and contact addresses of the referees must be submitted with the proposal, so the purchase committee can contact them independently.
23	Pre-purchase testing	• To ensure the equipment conforms for specifications, the committee requires the vendor to perform some standard tests *before* the purchase process is complete. The validity of the tender will hinge on the successful and accurate measurement of these test samples. • The vendor must conclude the testing and submit the data within 1 week of receipt of samples.
24	**Warranty**	1. **The complete system is to be under a warranty period of a minimum of 5 years** (year-wise breakup value should be shown in the commercial bid) along with free software upgrades for the entire system including all the attachments. 2. **Warranty should include FEG source**, apertures, all the parts and accessories of the SEM, and optional items, including pumps and gauges. 3. The vendor should include the cost of any spares that are expected to be needed during the warranty period, including electronics, subcomponents, and software. Vendors can assume usage of 2500 hours/year for this calculation. If the instrument is found to be defective, it has to be replaced or rectified at the bidder's cost within 30 days from the date of receipt of written communications from IISc, Bangalore. If there is any delay in replacement or rectification, the warranty period should be correspondingly extended. The cost for the extension of the warranty beyond five years should be mentioned separately, which is an optional item a. Provide itemized cost for *required/expected* spares for 5 years of operation. For sake of this calculation, the vendor may

		assume active tool usage of 60 hours/week. This number will be used to estimate the life cycle cost of the tool. b. The cost of annual maintenance contract. The details of AMC are given below. This number will be used to estimate the life cycle cost of the tool. c. Length of time that the tools will be supported with service and spares from the date of installation. Our requirement is that the tools be supported for at least 8 years from the date of installatio To quote lowest price, vendors often quote for obsolete or soon to-be obsolete equipment. This is NOT acceptable. For a user-facility like CeNSE, it is vital that the equipment be serviceable an supported for the foreseeable future. The length of guaranteed support will be used to estimate the life-cycles cost of the tool. d. During the warranty period If any part, sub-assembly, or module of the SEM requires replacement or repair at the OEM facility: ▪ The OEM/vendor shall bear full responsibility for shipping the defective part from IISc to the OEM facility and returning the repaired/replaced part back to IISc. ▪ All transportation, insurance, customs clearance, and associated costs shall be fully borne by the OEM/vendor during the warranty period for parts requiring OEM servic **4. Minimizing Downtime:** The OEM/vendor shall ensure downtime is minimized by expediting shipping or providing temporary replacement pa if necessary. 5. Field Emission Gun (FEG) Replacement: In case the FEG requires replacement during the warranty or AMC period: a. The OEM/vendor shall supply and install a new FEG at IISc withou insisting on the return of the old/defective FEG. b. IISc will retain the old/defective FEG for records, testing, or dispos as per institute policy. c. The cost of the new FEG (including shipping, insurance, customs, and installation) shall be fully borne by the OEM/vendor under th warranty or AMC terms. d. The OEM/vendor shall not request the old FEG to be shipped back to the OEM under any circumstances. e. Warranty/AMC coverage shall continue seamlessly after FEG replacement. 6. As an additional option, provide cost of an annual maintenance contract (AMC) for 3 years, post warranty. a. Scope of AMC: The AMC covers preventive and corrective maintenance of the SEM system, including the main console, vacuum system, detectors, and all associated accessories, includin the computer/workstation. b. Includes two preventive maintenance (PM) visits per year and unlimited breakdown visits during the contract period. c. Includes calibration and performance verification of the SEM as pe OEM standards during each PM visit. d. The emergency visit should be supported with a 48-hour response window. e. Clarify if maintenance will be done by a trained local (within India) engineer or a specialist from the OEM.

		f. Include an itemized list of spares (e.g. maintenance kits) that are essential for scheduled visits; 7. The commercial bids will be evaluated based on the life-cycle cost of the tool. This includes the cost of purchase, maintenance, spares, etc.
25	Acceptance tests	1. Imaging and measurement of 5nm thickness of Gold Metal 2. Imaging and measurement of 10nm thickness of SiO2 layer 3. Imaging and measurement of 200nm PMMA photoresist layer 4. On-site demonstrations of resolutions for all the detectors at 0.5 KV, 1 KV, and 15 KVs as per the specifications 5. Magnification Calibration: Magnification accuracy within ±2% across the range from 20× to 1,000,000× using traceable calibration standard. 6. Detector Functionality: All detectors (SE, BSE, STEM, EDS/WDS, EBSD if applicable) shall be functional and provide clear signals. No abnormal noise or drift during imaging. 7. System should be able to capture stable, drift-free images for at least 1 hour. 8. Clear, crisp drift-free images at more than 500 KX magnification 9. Auto-focus, auto-stigmation, and alignment features should function correctly. 10. Demonstrate the working of all the accessories 11. Training & Documentation: OEM must provide basic user and maintenance training. Complete manuals and performance test results must be submitted. 12. All the above criteria shall be demonstrated jointly by the OEM engineer and the institute representative. 13. Both parties will sign the Acceptance Test Report 14. The warranty period will commence only after successful acceptance of the SEM.

Section 5 - Technical Bid

The technical bid should furnish all requirements of the tender along with all annexures in this section and submitted to

CeNSE Office
GF-15,
Attn: Dr. Suresha S J
Centre for Nano Science and Engineering
Indian Institute of Science
Bangalore – 560012, India

Annexure-1:

Details of the Bidder
The bidder must provide the following mandatory information & attach supporting documents wherever mentioned:

Details of the Bidder

Sl. No	Items	Details
1.	Name of the Bidder	
2.	Nature of Bidder (Attach attested copy of Certificate of Incorporation/ Partnership Deed)	
3.	Registration No/ Trade License, (attach attested copy)	
4.	Registered Office Address	
5.	Address for communication	
6.	Contact person- Name and Designation	
7.	Telephone No	
8.	Email ID	
9.	Website	
10.	PAN No. (attach copy)	
11.	GST No. (attach copy)	

Signature of the Bidder

Name
Designation, Seal Date:

Annexure-2:

Declaration regarding experience

To,
The Chairperson,
Centre for Nanoscience and Engineering,
Indian Institute of Science,
Bangalore – 560012, India

Ref: Tender No: XXXXXXXXX
Dated: XXXXX

Supply and installation of Scanning Electron Microscope (SEM) at CeNSE, IISc Bangalore

Sir,

I've carefully gone through the Terms & Conditions contained in the above referred tender. I hereby declare that my company / firm has ---- years of experience in supplying and installing Scanning Electron Microscope (SEM).

(Signature of the Bidder)
Printed Name
Designation, Seal Date:

Annexure-3:

Declaration regarding track record

To,
The Chairperson,
Centre for Nano Science and Engineering
Indian Institute of Science,
Bangalore – 560012, India

Ref: Tender No: XXXXXXX
Dated: XXXXX

Supply and installation of Scanning Electron Microscope (SEM) at CeNSE, IISc Bangalore

Sir,
I've carefully gone through the Terms & Conditions contained in the above referred tender. I hereby declare that my company/ firm is not currently debarred / blacklisted by any Government / Semi Government organizations / institutions in India or abroad. I further certify that I'm competent officer in my company / firm to make this declaration.

Or

I declare the following

Sl.No	Country in which the company is Debarred /blacklisted / case is Pending	Blacklisted / debarred by Government / Semi Government/Organizations /Institutions	Reason	Since when and for how long

(NOTE: In case the company / firm was blacklisted previously, please provide the details regarding period for which the company / firm was blacklisted and the reason/s for the same).

Yours faithfully
(Signature of the Bidder)

Name
Designation, Seal
Date:

Annexure – 4:

Declaration for acceptance of terms and conditions

To,
The Chairperson,
Centre for Nano Science and Engineering
Indian Institute of Science,
Bangalore – 560012, India

Ref: Tender No: XXXXXX
Dated: XXXX

Supply and installation of Scanning Electron Microscope (SEM) at CeNSE, IISc Bangalore
Sir,

I've carefully gone through the Terms & Conditions as mentioned in the above referred tender document. I declare that all the provisions of this tender document are acceptable to my company. I further certify that I'm an authorized signatory of my company and am, therefore, competent to make this declaration.

Yours faithfully,

(Signature of the Bidder)
Name
Designation, Seal Date:

Annexure – 5:

Details of items quoted:

22. Company Name
23. Product Name
24. Part / Catalogue number
25. Product description / main features
26. Detailed technical specifications
27. Remarks

Instructions to bidders:

3. Bidder should provide technical specifications of the quoted product/s in detail.
4. Bidder should attach product brochures along with technical bid.
5. Bidders should clearly indicate compliance or non-compliance of the technical specifications provided in the tender document.

Section 6 – Commercial Bid

The commercial bid should be furnished with all requirements of the tender with supporting documents as mentioned under:

S.No	Description	Cat. Number	Quantity	Unit Price	Sub total
1.	Essential items noted in the technical specification				
1.a	… (details of essential items)				
1.b	…				
2.	Optional items noted in the technical specification				
2.a	… (details of essential items)				
2.b	…				
3.	Accessories for operation and installation				
4.	All Consumables, spares and software to be supplied locally				
5.	Warranty (5 years)				
6.	AMC 3 years beyond warranty				
7.	Cost of Insurance and Airfreight				
8.	FOR-IISc Bangalore/CIP Bangalore				

Any additional items

S.No	Description	Cat. Number	Quantity	Unit Price	Sub total

Addressed to

The Chairperson,
Attn: Dr. Suresha S J
Centre for Nano Science and Engineering
Indian Institute of Science
Bangalore – 560012, India

Section 7 – Checklist

(This should be enclosed with technical bid- Part A)
The following items must be checked before the Bid is submitted:

1. Sealed Envelope "A": Technical Bid

6. **Section 5- Technical Bid (each page signed by the authorized signatory and sealed) with the below annexures:**
    a. **Annexure 1: Bidders details**
    b. **Annexure 2: Declaration regarding experience**
    c. **Annexure 3: Declaration regarding clean track record**
    d. **Annexure 4: Declaration for acceptance of terms and conditions**
    e. **Annexure 5: Details of items quoted**
7. **Copy of this tender document duly signed by the authorized signatory on every page and sealed.**

2. Sealed Envelop "B": Commercial Bid

Section 6: Commercial Bid

Your quotation must be submitted in two envelopes: **Technical Bid (Envelope A) and Commercial Bid (Envelope B)** super scribing on both the envelopes with Tender No. and due date and both of these in sealed covers and put in a bigger cover which should also be sealed and duly super scribed with Tender No., Tender description & Due Date.