



राष्ट्रीय विज्ञान शिक्षा एवं अनुसंधान संस्थान, भुवनेश्वर
(परमाणु उर्जा विभाग, भारत सरकार का एक स्वयं शासित संस्थान)
NATIONAL INSTITUTE OF SCIENCE EDUCATION AND RESEARCH
(AN AUTONOMOUS INSTITUTE UNDER DEPT. OF ATOMIC ENERGY, GOVT. OF INDIA)

Notice Inviting E-Tender No. NIT-24/2018-NC-000020-PHY-18-19 (2 Part Tender)

Cryo FE-SEM

Cost of Tender is 1500.00 (Non Refundable)

Paper Notice



**NATIONAL INSTITUTE OF SCIENCE EDUCATION & RESEARCH
JATNI CAMPUS, P.O. - JATNI
KHURDA – 752050, ODISHA, INDIA**

Notice Inviting E-Tender No. NIT-24/2018-NC-000020-PHY-18-19 (2 Part Tender)

E-Tenders are invited on behalf of the Director, National Institute of Science Education and Research, Jatni from the manufacturers(Indian or Foreign) and their authorised reseller/Indian agent only for supply & installation of the following items:-

Sl. No.	Name of the Items	Tender No.	Name of Department	Indent No.	Qty.	EMD in INR
01	CRYO FE-SEM	NIT-24/2018	School Of Physical Sciences (CIS)	NC-000020-PHY-18-19	01 unit	460000.00

Tender can be downloaded and bided from website address: www.tenderwizard.com/NISER. Tender documents for viewing only are also available in NISER web-site address: www.niser.ac.in. further all corrigendum and addendum will be published on NISER website and tenderwizard portal.

NISER is publishing all its public and limited tender on NISER website.

Sd/-.
Stores & Purchase Officer



NATIONAL INSTITUTE OF SCIENCE EDUCATION & RESEARCH
JATNI CAMPUS, P.O. –BHIMPUR-PADANPUR, VIA-JATNI
KHURDA – 752050, ODISHA, INDIA
Notice Inviting E-Tender No. NIT-24/2018-NC-000020-PHY-18-19
(2 Part Tender)

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E- Tenders are invited on behalf of the Director, National Institute of Science Education and Research, Jatni from the manufacturers(Indian or Foreign) and their authorised reseller/Indian agent only for supply & installation of the following items:-

NB: PARTIES REGISTERED WITH SSI/DGS&D/DAE/MSME/NSIC AND FOREIGN PARTIES QUOTING DIRECTLY ARE EXEMPTED FROM PAYING EMD and Tender Fee.

Standard e-Tender Terms & Conditions

1. The details of tender notification can be downloaded from www.tenderwizard.com/NISER under "**Tender Free View**" link.
2. Vendors should obtain the USER ID and PASSWORD from www.tenderwizard.com/NISER by clicking on "**REGISTER ME**" link in the homepage.
3. The Vendor registration fee has to be paid to ITI Ltd for Rs. 1180/- including GST using the e-payment link provided at the time of registration, and the mode of payments are Credit Card, Debit Card and Internet Banking. Vendor Registration is Valid for 01year.
4. For further details on e-Tender participation, please contact ITI Help desk on
 - Telephone: 080-49352000/9686115318
 - Email: harishkumar.kb@etenderwizard.com, ambasa@etenderwizard.com.
5. Tenders should be submitted only through E-Tender portal and obtain the Tender Acknowledgement copy as a proof of successful submission.
6. **For any query regarding tender terms & conditions please sent email to spo@niser.ac.in.**

Sd/-.
Stores & Purchase Officer



**NATIONAL INSTITUTE OF SCIENCE EDUCATION AND RESEARCH
NIT OPEN DOCUMENT (2 PART BID)
SUPPLY & INSTALLATION
OF**

CRYO FE-SEM

**Notice Inviting E-Tender No. NIT-05/2018-NC-001191-12-R&D-NIS-5.10-0100-17-18
(2 Part Tender)**

National Institute of Science Education & Research (NISER), Jatni is an Autonomous Institute under Dept of Atomic Energy. NISER would like to procure the following equipment. The Technical Specifications Schedule of Requirements and Allied Technical details are given in Part-1 of tender document.

•Item: CRYO FE-SEM

• Tender Enquiry No: NIT-24/2018 (NC-000020-PHY-18-19)

•Last date of submission of E-bid : 08/11/2018 up to 12:30 p.m

• Opening of Technical Bid : 08/11/2018 at 2:30 p.m

•Date and Time of Pre-Bid meeting: 24/10/2018 at 3:00 p.m at SPS Conference Hall

• Contact Person – Dr. Kartikeswar Senapati (kartik@niser.ac.in)

**Sd/-,
(Deepak Srivastava)
Stores & Purchase Officer**

The Institute can provide following documents.

- 1. Custom Duty exemption certificate (for custom duty @5.15%)**
- 2. GST Exemption Certificate (for GST @ 5%)**

COST OF TENDER IS RS.1500/- (NON REFUNDABLE).

**This is payable in cash or Demand Draft of a scheduled Bank in favour of
Director, NISER payable at Bhubaneswar/Jatni**



PART - 1
TERMS & CONDITIONS
FOR SUPPLY AND INSTALLATION OF
CRYO FE-SEM
FOR
NATIONAL INSTITUTE OF SCIENCE EDUCATION AND RESEARCH, JATNI
Notice Inviting E-Tender No. NIT-24/2018-NC-000020-PHY-18-19
(2 Part Tender)

1. Director, National Institute of Science Education & Research, Jatni (NISER) invites E-Tenders for **CRYO FE-SEM** from the Manufacturer and their authorised reseller only having following credentials.
 - A. Should have satisfactorily completed **03 similar supplies** (at least one of them in Central Government/Central Autonomous Body/Central PSU) in last 05 years.
 - B. **Similar or Similar Nature of work means** Supply & Installation of **CRYO FE-SEM** for any of the following :
 - a) **Government/Autonomous Institutions**
 - b) **Government Research Centres**
 - c) **Universities**
 - d) **Autonomous/Reputed Private Research Centres**
 - e) **Purchase Orders / Completion certificates if any, for supporting above requirements.**

The Bidders are requested to give detailed tender in the prescribed forms in two Bids
i.e. Part - I Technical Bid.
Part - II Commercial Bid.

2. **Contact for information** :(Only E-mail enquiries will be entertained)

For Technical Information of CRYO FE-SEM

Dr. Kartikeswar Senapati,
School of Physical Sciences, NISER.
E-Mail – Dr. Kartikeswar Senapati <kartik@niser.ac.in>

For Information regarding Commercial& all other Terms & Conditions:

Mr. Deepak Srivastava
Stores & Purchase Officer
National Institute of Science Education & Research, Jatni
E-Mail-spo@niser.ac.in

3. Supply means:

“Supply, Installation, Commissioning and satisfactory demonstration of the whole equipment”.

4. Tender Document:

The Technical Offer should comprise of the following:

- a) Tenders, which are submitted without following the Two-Bid Offer System, will summarily be rejected.
- b) The technical offer should be complete to indicate that all products and services asked for are quoted.

c) The purpose of certain specific conditions is to get or procure best product/service etc. for NISER. The opinion of Technical Committee shall be the guiding factor for technical short listing.

d) The earnest money deposit as indicated against the item should be sent by post so that it reaches on or before the opening of the technical bid of e-tender system in the form of Account Payee Bank Draft payable on any branch of Nationalised/Schedule Bank at Bhubaneswar/ Jatni in favour of “Director, National Institute of Science Education & Research, Jatni”, in a separate sealed envelope. All tenders submitted without requisite amount of earnest money shall be rejected and their technical and financial bids shall not be opened. No interest is payable on EMD.

The EMD will be returned to the bidders(s)/Agents whose offer is not accepted by NISER within one month from the date of the placing of the final order(s) on the selected bidder(s). In case of the bidder(s) whose offer is accepted the EMD will be returned on submission of Performance Bank Guarantee (if applicable). However, if the return of EMD is delayed for any reason, no interest /penalty shall be payable to the bidders.

EMD EXEMPTION:

PARTIES REGISTERED WITH SSI/DGS&D/DAE AND FOREIGN PARTIES QUOTING DIRECTLY ARE EXEMPTED FROM PAYING EMD & TENDER COST. FOREIGN PARTIES QUOTING DIRECTLY UNDER ORIGINAL SEAL AND SIGNATURE (NOT SCANNED) WILL GET THE EXEMPTION.

The EMD shall be forfeited:

If the bidder withdraws the bid during the period of bid validity specified in the tender. In case a successful bidder fails to furnish the Performance Bank Guarantee.

a) Undertaking that the successful bidder agrees to give a Performance Bank Guaranty of 10% of the purchase order value in favour of “Director, National Institute of Science Education & Research, Jatni valid till warranty period.

Performance Bank Guarantee:

Within ten (10) days of the award of contract, the vendor shall furnish a Performance Bank Guarantee amounting to 10% of the purchase order value in the form of Bank Guarantee favouring the Director, National Institute of Science Education & Research, Jatni valid till completion of warranty period. Following documents needs to be uploaded on E-Tender portal.

a) If the bid is for branded makes, authorization letter from principals clearly indicating that the vendor is the competent authority to sell and provide services towards the items mentioned in the scope of supply given in this tender document.

b) Copy of GST No. and PAN No. allotted by the concerned authorities.

c) List of deliverables / Bill of materials and services.

d) Compliance sheet with any deviation with reference to the terms and specifications.

e) The item should be supplied with manuals and the manuals including technical drawings should be complete in all respects to operate the system without any problem.

“Commercial Bid” shall contain:

a) Price schedule shall complete in all respects. **Tender with any condition including conditional rebate shall be rejected forthwith.**

b) Cost of all the items should be mentioned clearly and individually in the Commercial Offer only.

c) **The Bidders are requested to quote for Educational/Institutional Price for Machine/ Equipment and, since we are eligible for the same.**

d) **Printed conditions of the vendor submitted with the tender will not be binding on NATIONAL INSTITUTE OF SCIENCE EDUCATION AND RESEARCH.**

5. Tender process & award of contract.

The technical bids will be evaluated to shortlist the eligible bidders. The commercial bids of only the short listed bidders shall be considered for further processing. Bidders whose technical offer is found acceptable and meeting the eligibility requirements as specified in this tender will be informed about the date and time of the opening of the commercial bid.

- (a) NISER will open commercial bids of only the short listed bidders, The Date and Time of opening the Commercial Bid will be intimated only to pre-qualified and technically acceptable Bidders for the item at a later date.
- (b) ONLY TECHNICALLY accepted competitive bids will be considered for placing Purchase Order.
- (c) **Purchaser's Right to vary Quantities at the time of Award:** NISER 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.

6. The Director NISER reserves the right to accept the offer in full or in parts or reject summarily or partly.

7. Delivery Period / Timeliness

The deliveries, installation must be completed within 180 days, after placement of purchase order. The time is the essence of the contract. It is mandatory for the bidders who respond to this bid to meet these expectations, as they are tightly linked to NISER's plans of completing the project within the time frame.

8. Locations for the Supply / Services

The Laboratory Equipment covered by this document is required to be supplied and installed at CIS, School of Physical Science of NISER, Jatni.

9. Order Placement and Release of Payment

The Purchase Order and payment shall be processed by –

**Stores & Purchase Officer
National Institute of Science Education & Research,
Jatni Campus, P.O. – Bhimpur-Padanpur, Via-Jatni,
Khurda – 752050, Odisha, INDIA**

Payment for the items to be supplied by the vendor against the purchase order shall be made by National Institute of Science Education & Research as follows:-

Foreign Currency payment:-

100% payment will be made through Letter of Credit. 80% will be paid after submission original shipping documents & balance 20% will be released after satisfactory installation, commissioning, warranty certificate and along with submission of Performance Bank Guarantee.

INR payment:-

80% will be released after receipt of material in good condition & balance 20% will be released after satisfactory installation, commissioning, warranty certificate and along with submission of Performance Bank Guarantee.

Agency Commission: Agency Commission to be paid to Indian Agent should be specified separately and same will be paid in INR.

The tenderers who are not agreeing to above payment terms are requested not to submit their tender otherwise their EMD will be forfeited.

10. NISER will not provide any accommodation/transportation for the engineers/ representatives for attending installation, commissioning and demonstration work. It is the absolute responsibility of the Principal Supplier/Indian Agent to make their own arrangements.

11. The successful bidder, on award of contract / order, must send the contract / order acceptance in writing, within 7 days of award of contract / order failing which the EMD will be forfeited.

12. Period of validity of bids

- (a) Bids shall be valid for a period of 90 days from the date of opening the Technical bid.
- (b) NISER may ask for the bidder's consent to extend the period of validity. Such request and the response shall be made in writing only. The bidder is free not to accept such request without forfeiting the EMD. A bidder agreeing to the request for extension will not be permitted to modify his bid.
- (c) Bid evaluation will be based on the bid prices without taking into consideration the above corrections.

13. Corrupt or Fraudulent Practices

NISER requires that the bidders who wish to bid for this project have highest standards of ethics. NISER 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. NISER may declare a vendor ineligible, either indefinitely or for a stated duration, to be awarded a contract if it at any time determines that the vendor has engaged in corrupt and fraudulent practices during the execution of contract.

14. 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, Director, NISER's interpretation of the clauses shall be final and binding on all parties.

15. Price

- (a) The price quoted shall be considered firm and no price escalation will be permitted at any time. The quotation should be in Indian Rupees or any known foreign currency. Packing, forwarding, freight, insurance, **Agency commission** and commissioning charges, if any extra may be quoted separately in Commercial Bid.
- (b) In case of INR bids the price criteria should be on delivered at NISER, Jatni including Free onsite comprehensive **03 years** warranty, installation, commissioning, Training, demonstration, packing, transportation, insurance, loading & unloading (At NISER) etc. charges. Govt. Levies like GST, etc., if any, shall be paid at actual rates applicable on the date of delivery. Rates should be quoted accordingly giving the basic price, GST, etc., if any.
- (c) Please provide GST No. of the firm allotted by the concerned authorities in your quotation.
- (d) In case of Foreign Currency bid: - Price criteria will be FOB nearest International Airport/Sea Port including Free onsite comprehensive **03 years** warranty, installation, commissioning & Training & demonstration charges. Agency Commission if any is required to be quoted separately in Financial bid which will be paid directly to Indian agent in INR.

16. Pre-installation:

Pre-installation facilities required for installation may please be intimated in the technical bid. Subsequently, before the consignment lands in NISER, Jatni the bidder shall confirm that the pre-installation requirements are sufficient for installation of the equipments. In other words the bidder should continuously monitor the pre-installation requirements and see that everything is ready before the consignment is taken to the site for installation.

17. Installation, Warranty & Support

- Bidder shall be responsible for installation / demonstration wherever applicable and for after sales service during the warranty and thereafter.
- The items covered by the schedule of requirement shall carry minimum ***Three (03) years free comprehensive warranty from the date of installation of the equipment*** by NISER. Warranty shall include free maintenance of the whole equipment supplied including free replacement of parts. The defects, if any, shall be attended to on immediate basis but in no case any defect should prolong for more than 24 hours. The comprehensive warranty includes onsite warranty with parts.
- ***The defects, if any, during the guarantee/warranty period are to be rectified free of charge by arranging free replacement wherever necessary. This includes cost, insurance, freight, custom duty, GST, local taxes if any should be borne by the beneficiary or his agent. A clear confirmation should be given for this item.***
- The OEM/bidder shall assure the supply of spare parts after warranty is over for maintenance of the equipment supplied if and when required for a period of 7 years from the date of supply of equipment on payment on approved price list basis.
- The equipment must be supported by a Service Centre manned by the principal vendor's technical support engineers. The support through this Centre must be available 24 hours in a day, seven days a week and 365 days a year. Also it should be possible to contract the Principal's vendor support Centre on a toll free number/web/mail.
- The vendor will have to arrange for all the tools required for installation, testing & maintenance etc.

18. Indemnity

- The vendor shall indemnify, protect and save NISER against all claims, losses, costs, damages, expenses, action suits and other proceeding, resulting from infringement of any law pertaining to patent, trademarks, copyrights etc. or such other statutory infringements in respect of all the equipment's supplied by him.
- The successful bidder will be fully responsible for payment of wages and other dues as prescribed and compliance of various Labour Laws.
- The successful tenderer should give an undertaking that the staff deployed at the centre in terms of this contract at all time will be employees of the agency exclusively and they shall not be entitled to any claim of employment or permanency of job with NISER.
- NISER reserves the right to forfeit whole or part of the security money towards any damage/lose caused due to the negligence on the part of the agency engaged.

19. Insurance

The equipment to be supplied will be insured by the vendor against all risks of loss or damage from the date of shipment till such time it is delivered at NISER site or as per agreed terms, in case of Rupee/Foreign currency transaction.

20. Penalty for delayed Services / LD

As time is the essence of the contract, Delivery period mentioned in the Purchase Order should be strictly adhered to. Otherwise the EMD/SD will be forfeited and also LD clause will be applicable /enforced.

If the supplier fails to Supply, Install and Commission the equipment as per specifications mentioned in the order within the due date, the Supplier is liable to pay liquidated damages of 1% of order value per every week of delay subject to a maximum of 10% beyond the due date. Such money will be deducted from any amount due or which may become due to the supplier.

NISER reserves the right to cancel the order in case the delay is more than 30 days Penalties, if any, will be deducted from the EMD.

21. Jurisdiction

If a dispute arises out of or in connection with the contract, or in respect of any defined legal relationship associated therewith or derived there from, the parties agree to submit that dispute to arbitration under the ICADR Arbitration Rules, 1996.

The authority to appoint the arbitrator(S) shall be the International Centre for alternative dispute resolution.

The International Centre for Alternative Dispute Resolution will provide administrative services in accordance with the ICADR arbitration Rules, 1996.

Sd/-.
Stores & Purchase Officer
NISER, Jatni

DECLARATION BY THE VENDOR

It is hereby declared that I/We the undersigned, have read and examined all the terms and conditions etc. of the tender document for which I/We have signed and submitted the tender under proper lawful Power of Attorney. It is also certified that all the terms and conditions of the tender document are fully acceptable to me/us and I/We will abide by the conditions from serial no. 1 to 21 and we have not given any printed conditions beyond the scope of this tender. This is also certified that I/We/Our principal manufacturing firm has no objection in signing the purchase contract if the opportunity for the supply of the items against this tender is given to me/us.

Date:

Signature:

Address:

Name:

Designation:

On behalf of:

(Company Seal)



PART - 1
FOR SUPPLY AND INSTALLATION OF
CRYO FE-SEM
FOR
NATIONAL INSTITUTE OF SCIENCE EDUCATION AND RESEARCH, JATNI
Notice Inviting E-Tender No.NIT-24/2018-NC-000020-PHY-18-19 (2 Part Tender)

General Information -Self Attested			
www.tendewizard.com/NISER			
Vendor Name			
Sl. No.	Basic Information	Please fill details	Page No. with name of the documents attached in support of information required
1	Name of the Company		
2	Full address of company along with Telephone no. Fax no. E-mail address :		
3	Local address of company for communication, if any		
4	Are you a manufacturer or dealer/reseller		
5	If dealer please attach certificate from your principal company clearly showing validity of the certificate		

6	<p>If foreign supplier : Please give details of your Indian authorised partner if any</p>		
7	<p>Annual turn over in last 3 financial years in Rs. Crores. (i) Year 2015-2016 (ii) Year 2016-2017 (iii) Year 2017-2018 Please attach balance sheet</p>		
8	<p>Supply & Installation of CRYO FE-SEM to our tendered of last 3 financial years in State Government or Govt. of India Department(s) /Reputed Organisation(s) (in Nos. and Value) (Please attach list of clients) (i) Year 2015-2016 (ii) Year 2016-2017 (iii) Year 2017-2018 Please attach copy of Purchase Order/ Completion Certificate</p>		
9	<p>GST Registration no. with Place</p>		
10	<p>Income Tax Registration no. with place</p>		
11	<p>Photocopy of EMD (If Applicable)</p>		
12	<p>Name and address on whom purchase order will be placed</p>		

13	Bank details of the supplier on which order will be placed		
14	If you are claiming exemption certificate under SSI/DGS&D/DAE, Please attach self attested copy of certificate which should be valid during the tender process		
15	Service centre details & principal vendor support centre		
16	Delivery period :Please mention time of delivery & Installation		
17	Declaration to be submitted by Vendor		
18	Warranty :- 03 years onsite comprehensive warranty from the date of installation of the equipment (Accepted/Not Accepted)		



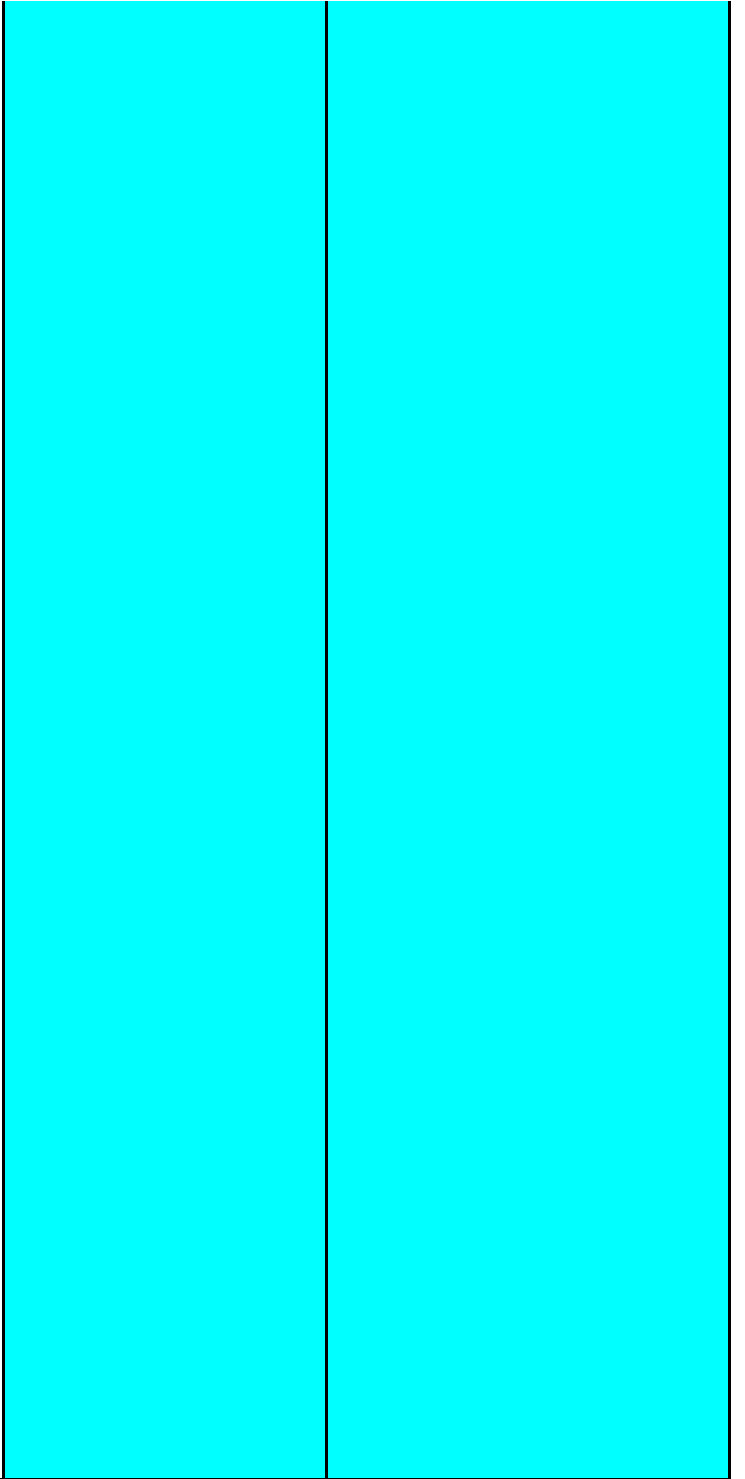
**TECHNICAL BID
SUPPLY AND INSTALLATION
OF
CRYO FE-SEM
FOR
NATIONAL INSTITUTE OF SCIENCE EDUCATION AND RESEARCH, JATNI
Notice Inviting E-Tender No. NIT-24/2018-NC-000020-PHY-18-19**

www.tenderwizard.com/NISER

www.tenderwizard.com/NISER			
Vendor Name		-	
SL. No.	Item Specification	Accepted/Not Accepted/Deviation if any. Please specify your specification if deviation is there	Page No. of your specifications/Brochure/Deviation, etc attached in support of your specification/deviation
	"CRYO FE-SEM"		

1 (i)

Electron gun:
High brightness Field Emission
Schottky Emitter



(ii)	<p>Image Resolution and column specifications</p> <p>1) Resolution with In- Beam/in lens SE detector b. 1 @ 1 kV or better</p> <p>2) Resolution with In-Chamber SE detector a. 1.2nm at 30 kV or better</p> <p>3) Resolution with In-Chamber BSE detector a. 2 nm @ 30 kV</p> <p>4) Resolution with In-Beam/in lens BSE detector a. 2 nm @ 30 kV</p> <p>5) Magnification: 30 X to 10,00,000 X or better</p> <p>Electron column must be compatible for all kinds of biological, conducting, non-conducting, and magnetic sample imaging. Electrostatic beam blanker must be pre-installed for future upgrade to EBL system.</p> <p>The definition of resolution and the method used to determine the resolution should be clearly specified.</p>		
(iii)	<p>Accelerating voltage : 200 V to 30 kV or better continuously adjustable.</p>		

(iv)	<p>Probe Current :</p> <ul style="list-style-type: none"> • Variable from 1 pA to 100 nA or better. <p>Probe current setting must be fully automatic without need for column tuning or change of aperture</p>		
(v)	<p>Vacuum System:</p> <p>Should have IGP and TMP and dry scroll pump for ultra clean and fast pumping</p> <ul style="list-style-type: none"> • Chamber Vacuum: 7×10^{-3} Pa or better for dry specimen • Gun vacuum: 4×10^{-7} Pa or better in all cases 		

(vi)	<p>Low Vacuum mode:</p> <ul style="list-style-type: none"> • Differential pumping systems for specimen chamber • Low Vacuum Range: 10 Pa to 200 Pa or better, continuously variable. 		
(vii)	<p>SEM Chamber Specimen Chamber</p> <ol style="list-style-type: none"> 1) Internal dimensions: 250 mm (width) * 300 mm (depth) or more 2) Chamber door width: 250 mm (width) * 290 mm (height) or more 3) Chamber Ports: 12 Ports for future expansion with WDS, EBSD and micromanipulator etc. 		
(viii)	<p>Specimen Stage</p> <ol style="list-style-type: none"> 1) Five axis motorized axis sample stage 2) Sample stage movements <ol style="list-style-type: none"> a. X = 100 mm or better – motorized b. Y = 100mm or better – motorized c. Z = 70 mm or better – motorized d. R: 360° – motorized and Tilt: - 4° to +70° - or better motorized 3) Maximum Specimen Height: 380 mm 4) Multi sample holder for holding 7 or more sample stubs, 5) Stage movements must be fully Software controlled for absolute or relative co-ordinate movements, storing of positions, resorting to saved positions, moving to pre-set specimen positions, mouse click to centre moving, drag with mouse, WD & Z movement synchronization 6) Fully Eucentric in Tilt axis and 		

	<p>also in Rotation axis, allowing simultaneous changes in tilt and rotation while maintaining the same FOV (Field Of View). Eucentric Tilt and Eucentric Rotation should be possible at full range of working distance.</p>		
(ix)	<p>Detectors:</p> <ol style="list-style-type: none"> 1. In-Chamber SE – Secondary Electron Detector 2. In-Chamber BSE – Fully Retractable Back Scattered Electron Detector: 3. pA Meter with Faraday Cup For Probe Current / Specimen current Measurement: 4. In Beam / In lens SE detector: 5. In Beam / In lens BSE detector: 6. CL detector : Retractable Compact CL Modified CL detector, Panchromatic, for simultaneous CL and BSE detection, wavelength range: 185 nm – 850 nm. All necessary hardware for CL imaging should be quoted together. 		
(x)	<p>SEM Automated Operation:</p> <ul style="list-style-type: none"> • WD (Focus) & Stigmator, • Contrast & Brightness • Scanning Speed (According to Signal – Noise Ratio) • Gun heating • Gun centering • Column Centering • Vacuum Control • Auto-diagnostics • Direct and continuous control of beam spot size. • Direct and continuous control of beam current • All parts including valves, apertures should be operated through computer controlled software. 		

(xi)	<p>SEM Computer: Latest PC with Intel quad core processor, RAM 16 GB, 1 TB HDD, DVD-RW, Ethernet network card, high performance graphic processor, Windows 10 Pro 64-bit. Compatible with the base as well as with the optional hardware</p>		
(xii)	<p>Image Acquisition and display:</p> <ul style="list-style-type: none"> • 24-inch HD LCD or LED screen • Scanning Speed: 20 ns to 10 ms per pixel adjustable continuously. • Image Size: Selectable up to 8,192 x 8,192 pixels or better • Image Depth: Up to 16 bits per channel • Image Formats: BMP, TIFF, JPEG, JPEG2000, GIF, PNG or PGM, PPM • Point & Line Scan, Image rotation, Image shift, Tilt compensation • Dynamic Focus – in plane or folded plane • Split screen Imaging mode, live display of up to 4 live screens, should have signal mixing in user defined ratios 		
(xiii)	<p>SEM Software</p> <ul style="list-style-type: none"> • Image Operations • Analysis & Measurement • Image Processing • Image Measurement • 3D Beam tilting / scanning around XY axis for 3D scanning and imaging • Live Stereo Imaging with storage in AVI format • Remote control network software with internet TCP / IP open protocols. • Built-in self-diagnostics for system readiness check <p>Mouse click centering feature while imaging must be provided</p>		

(xiv)	<p>3D Imaging: 1) 3D Imaging: - Live 3D Imaging 2) Software for Live Stereo Imaging & storage in AVI or other video format</p>		
(xv)	<p>Cryo SEM preparation unit: Nitrogen gas cooled SEM cold stage: -190 C or lower, to +100 C. Temperature stability: < 1°C Actively cooled fracturing/manipulation tool, micrometer controlled knife Large front window (150mm x 78mm) plus two top viewing ports Automated, high resolution sputtering (Pt) with film thickness monitor and carbon fibre evaporation attachment Automated sublimation Suitable floor-mounted turbo pumping with stainless steel vacuum connection to the preparation chamber pumping system: Base vacuum: 10⁻⁶ mbar or better. Single 5m³/hr or equivalent rotary vacuum pump to be provided. Pressurized 60 Lit LN2 dewar, required transfer chamber, suitable specimen stub of various sizes with suitable transfer rod, and all necessary accessories for biological sample cryo preparation to be provided. Automated touch pad control of all systems.</p>		
(xvi)	<p>Vibration isolation table and other furnitures: Should supply the necessary vibration isolation table and any other tables required for installing the working desktops for imaging, for EDS and for EBL workstation etc. Should provide 4 number of ergonomic height adjustable working chairs for SEM/EDS</p>		

	workstation		
(xvii)	Essential Accessories:		
	(a) A filament replacement module coupon (so that filament can be changed on demand at when needed after running out lifetime of installed filament)		
	(b) Track ball or Joystick for imaging operations		
	(c) IR Chamber scope: Chamber view camera (IR CCD)		
	(d) Touch alarm safety detector for specimen stage and detectors.		
	(e) Remote control hardware & network software for on line fault diagnosis using internet TCP / IP open protocols.		
	(f) Suitable air compressor		
	(g) Suitable wattage re-circulating chiller (Julabo make)		
	(h) All necessary gas cylinders (2 each) along with good quality double stage SS regulators		
	(i) A suitable compact dehumidifier of 7000 Cuft capacity self draining type		
	(j) A 10 kvA online UPS and battery backup for the whole system for 30 minutes		

	<p>(k)All required hardware for EBL such as electrostatic beam blanker and control electronics must be pre installed in the system for upgrade to EBL option when needed.</p>		
(xviii)	<p>Standard/calibration samples: Suitable standard/calibration samples must be provided for all imaging and spectroscopy options.</p>		
(xix)	<p>Installation, training and warranty: System should be installed by a factory trained engineer only. 3 days of training to be arranged on site 3 years of comprehensive warranty on all items including the 3rd party items.</p>		
2	OPTIONAL ITEMS		
(i)	<p>EDS system:</p> <ul style="list-style-type: none"> • Detector size 50 mm² Or more • Resolution 127 ev or better • LN2 Free, Peltier cooled detector • Detection from B(5)to U(92). • Silicon nitride window for compatibility with plasma cleaning & Improved efficiency in detection of light elements. <p>Supplied EDS computer system & analysis software should can perform data acquisition, storing and transfer in common Windows based application format, qualitative & quantitative analysis, line scanning, elemental or dot mapping (area) including spectrum imaging and phase mapping with specimen drift correction.</p>		

(ii)	<p>STEM detector: Resolution with STEM detector a. 0.8 nm at 30 kV Retractable STEM detector for simultaneous acquisition of the Bright Field (BF), Dark Field (DF) and High Angle Dark Field (HADF) signals</p>		
(iii)	<p>Combined Sputtering and Carbon Coating System: Fully Automatic Combined Sputter coater for imaging of non-conducting samples in High Vacuum</p> <ul style="list-style-type: none"> • Stainless steel hose for Pt target • Should includes one gold target, carbon fibre evaporation coater, quick-release carbon fibre insert for evaporation of carbon cord, rotating specimen stage and 2 stage oil sealed rotary vane pump • Additional Gold target for above sputter coater: 57mm Dia x 0.1mm Gold Target • Platinum target for above sputter coater: 57mm Dia x 0.1mm Platinum Target • Carbon Fibre - fine strands (10m) 		
(iv)	<p>Work station for electrical characterization of nano materials: Complete set of accessories for in-situ electrical characterization of Nano wires and Nano structures. It should include the following</p> <ul style="list-style-type: none"> • Micromanipulator: Three-axis micromanipulator system for electron microscopy with control electronics, joypad, PC software, tip holders for probe tips, sample probe tips, a vacuum feedthrough etc.. At least two independent micromanipulator probes should be provided to enable IV measurements of nanowires etc.. • Low current measurement kit: to carry out low current 		

	<p>measurements on conductive samples for Failure analysis, Qualification of high K gate materials, Low –current transistor measurements, EBIC/RCI analysis, electrical characterization of advanced materials such as nanowires, nanoflakes, and ultrathin films.</p>		
(v)	<p>EBL package: Offered system (hardware and software) should be able to create complex EBL structures with high speed and accuracy and should include the following minimum specifications</p> <p>1) Electron Column Beam Blanker : Brief Specification are a. Type of the Blanker:- Electrostatic, b. Blank time:- 50 ns min, c. Light time:- 50 ns min, d. Delay time:- 60 -80 ns min, e. Rep. rate:- 10 MHz or better</p> <p>2) Integrated pattern generator: with 16-bit scanning ramp DACs Should be able to provide a write field of 5 cm * 5 cm or better.</p> <p>3) Advanced Patterning software with provision for proximity effect correction ((on line and offline versions): Intended lithography package should be able to do multi-field exposures by field stitching and also multilayer alignment. Feature sizes down to 30 nm or better should be possible to fabricate. Minimum dwell time should be 20 ns or better. The following basic scanning shapes should be available: a. Point / Line / Cross / rectangle (outline, filled, stairs, polishing) b. circle (outline, filled) / annulus (filled, stairs, polishing) c. polygon (outline, filled) d. Advanced objects: e. bitmap / text / void objects / object groups / object matrices f. alignment marks / object overlap resolver (AND, OR,</p>		

	<p>Intersection) g. Multiple write fields / Stage Navigation h. Proximity effect correction i. GDSII and DXF import should be available 4) Holder for lithographic specimens which should include a standard sample and faraday cup for probe current measurement 5) Essential tools and accessories kit for EBL, including 950PMMA and 495PMMA 500 ml each. 6) A compact programmable spin coater capable of spinning samples from 2 mm diameter to 4 inch diameter to be provided. 7) A mini temperature controlled hot pad for baking of substrates. 8) A mini fridge to be provided for storing PMMA.</p>		
(vi)	<p>High Resolution Cathodoluminescence Imaging & Spectroscopy System:</p> <ul style="list-style-type: none"> • It should be compatible with the proposed FESEM • Cathodoluminescence attachment for SEM providing CL Spectroscopy and CL Imaging (total light and filtered through spectrometer) • Light collection with parabolic mirror, collecting >80% light from Lambertian source • Motorised mirror switching between panchromatic and monochromatic modes • LED mirror position indicator • Mirror should be retractable, to allow normal SEM performance. Mirror and CL apparatus should clear the SEM chamber when not in use • Free-space coupling to detection hardware avoiding light losses from reflections and absorption in optical fibres • To avoid vibrational coupling to SEM, all hardware should be mounted to SEM chamber • In-line 4-position filter housing, including removable RGB filters 		

	<p>and 50 - 80nm band pass filter set</p> <ul style="list-style-type: none"> • CL Imaging light path with less than or equal to 3 reflections • Spectrometer with better than 0.5nm spectral resolution, continuously variable entrance and exit slit • Achromatic focusing optics to spectrometer • High sensitivity, peltier-cooled PMT detector suitable for wavelength range 160-930 nm and dark count rate <100cps • Simultaneous detection of SEM and CL image signals • Industry standard DigitalMicrograph data acquisition and analysis software 		
3	<p>Warranty :- 03 years onsite comprehensive warranty from the date of installation of the equipment (Accepted/Not Accepted)</p>		



**FINANCIAL BID
SUPPLY AND INSTALLATION
OF
CRYO FE-SEM
FOR
NATIONAL INSTITUTE OF SCIENCE EDUCATION AND RESEARCH, JATNI
Notice Inviting E-Tender No. NIT-24/2018-NC-000020-PHY-18-19**

www.tenderwizard.com/NISER							
Vendor Name							
SL. No.	Item Specification	Qty	Type of Currency	Unit Price in Foreign currency as per terms & condition no.15(d) of Tender document.	Total Price in Foreign Currency as per terms & condition no.15(d) of Tender document.	Unit Price in INR as per terms & condition no.15(b) of Tender document.	Total Price in INR as per terms & condition no.15(b) of Tender document.
1	CRYO FE-SEM [Specification as per technical bid SL. No. 1(i) to 1(xiv)]	1 unit					
2	Cryo SEM preparation unit (Specification as per technical bid.)	1 unit					
3	Vibration isolation table and other furnitures: Specification as per	1 unit					

	technical bid.							
4	Essential Accessories (Specification as per Technical Bid)							
	(a)A filament replacement module coupon (so that filament can be changed on demand at when needed after running out lifetime of installed filament)	1 unit						
	(b)Track ball or Joystick for imaging operations	1 unit						
	(c)IR Chamber scope: Chamber view camera (IR CCD)	1 unit						
	(d)Touch alarm safety detector for specimen stage and detectors.	1 unit						
	(e)Remote control hardware & network software for on line fault diagnosis using internet TCP / IP open protocols.	1 unit						
	(f)Suitable air compressor	1 unit						

	(g) Suitable wattage compact re-circulating chillers (Julabo make)	1 unit					
	(h) All necessary gas cylinders (2 each) along with good quality double stage SS regulators	1 unit					
	(i) A suitable compact dehumidifier of 7000 Cuft capacity self draining type.	1 unit					
	(j) A 10 kvA online UPS and battery backup for the whole system for 30 minutes	1 unit					
	(k) All required hardware for EBL such as electrostatic beam blanker and control electronics must be pre installed in the system for upgrade to EBL option when needed.	1 unit					
5	Standard/calibration samples Specification as per Technical bid	1 unit					
	Sub Total				0.00		0.00
	Agency Commission						
	GST Charge If Any						
	Grand Total				0.00		0.00
6	OPTIONAL ITEM						

(i)	EDS system Specification as per Technical bid	1 unit					
(ii)	STEM detector Specification as per Technical bid	1 unit					
(iii)	Combined Sputtering and Carbon Coating System Specification as per Technical bid	1 unit					
(iv)	Work station for electrical characterization of nano materials Specification as per Technical bid	1 unit					
(v)	EBL package Specification as per Technical bid	1 unit					
(vi)	High Resolution Cathodolumi High Resolution Cathodoluminesce nce Imaging & Spectroscopy System Specification as per Technical bid	1 unit					
7	AMC:- Comprehensive AMC charges after expiry of warranty period (in %) of basic price only						