

NATIONAL INSTITUTE OF TECHNOLOGY SILCHAR

Silchar – 788 010 (ASSAM)

No: NITS/PS-628/Phy/DST FIST/Hybrid Thin Film/18

Date: 14/12/2018

NOTICE INVITING TENDER

FOR SUPPLY AND INSTALLATION OF HYBRID THIN FILM DS FOR PHYSICS
DEPARTMENT AT NIT SILCHAR



LAST DATE & TIME OF SUBMISSION : 09/01/2019 up-to 01.00 PM

DATE & TIME OF OPENING : 09/01/2019 at 03.30 PM



NATIONAL INSTITUTE OF TECHNOLOGY
SILCHAR - 788 010

Tel.No. Director: (03842) 224879

Fax: (03842) 224797

NOTICE INVITING TENDER

Adv. No.: NITS/PS-628/Phy/DST FIST/Hybrid Thin Film DS/18

Sealed Tenders are invited from reputed Firms/Agencies/Manufacturer/Authorized Dealer FOR SUPPLY AND INSTALLATION OF HYBRID THIN FILM DS FOR PHYSICS DEPARTMENT AT NIT SILCHAR along with Earnest Money Deposit (EMD) @2% of the total bid value in the form of Demand Draft/Bank Guarantee in favour of "The Director, NIT Silchar", Payable at Silchar. No Interest shall be paid on EMD at the time of return. Bidders registered as NSIC/SSI/MSME are exempted. Necessary Certificate in support must be furnished where applicable.

Detail specification of required item/items are given in **(Annexure-A)**.

Tender document can be obtained from Purchase Section, NIT Silchar or may be downloaded from our website www.nits.ac.in or <http://eprocure.gov.in>. The cost of tender document is Rs.1,000/- (Non-refundable) to be submitted in the form of DD in favour of The Director, NIT Silchar-788010, Payable at Silchar. The last date and time for submission of Tender document will be 09/01/2019 up-to 01.00PM and tender(technical bid) will be opened on the same date at 03.30 PM in office of HOD, Physics Dept., NIT SILCHAR. Price bid of technically qualified bidders only shall be opened in a later date with prior intimation.

The offers without Cost of Tender & Earnest Money Deposit (EMD) shall out rightly be rejected.

Director, NIT Silchar reserves the right to extend the date or cancel the tender, accept or reject any/all tenders or not to purchase all or any of the items.

Tenders are to be sent/submitted in sealed covers addressed to:-

The Faculty-In-Charge, Purchase
National Institute of Technology, Silchar-788 010, Cachar, Assam
Email : purchasecell.nits@gmail.com


Registrar, NIT Silchar

NOTICE INVITING TENDER

Credential Criteria:

- The bidder should have provided similar nature of services to IITs/NITs/Govt. Departments/Semi Govt. Departments/PSU/Educational Institutions of National Importance etc. during last 3(three) years. **Duly certified copies are to be enclosed.**
- Tender/Quotations are to be submitted in **TWO PARTS** i.e. (a) **Technical Bid** and (b) **Price Bid**, in two separate properly sealed covers; and both these covers will have to be again put in to a single sealed cover. Also, the address of the firm submitting the tender/quotation must appear distinctly on both the inner sealed covers, indicating also **TECHNICAL BID/ PRICE BID** as may be applicable. The outer most cover shall be super scribed as
 - "QUOTATION FOR SUPPLY & INSTALLATION OFFOR
..... NIT SILCHAR.
 - VIDE TENDER REF NO NITS/PS-....., DATED.....
 - DATE OF OPENING

[The bid will summarily be rejected & returned to the bidder if the sealed envelope containing the quotation is not super scribed as above].

- **Genuine Pricing** (Both foreign & indigenous) :Vendor is to ensure that quoted price is not more than the price offered to any other customer in India to whom this particular item has been sold recently, particularly to IIT/Institutes and other Government Organization.
- **No Part Delivery:** Part shipment for any items will not be allowed.
- **Any Optional item quoted by the supplier will not be entertained.**
- **Termination for default :** Default is said to have occurred -
- If the supplier fails to deliver any or all of the items/services within the time period(s) specified in the purchase order or any extension thereof granted by NIT Silchar, the Institute may terminate the contract / purchase order in whole or in part and forfeit the EMD/PBG as applicable.

TERMS & CONDITIONS:

1. The bidding agency should be reputed firm and having all necessary certificates, viz. GST registration certificate, PAN, Registration, Sale Tax clearance Certificate, Authorized Dealership/Distributorship certificate, etc. The photocopies of all the certificates should be attached with the tender.
2. The firm should be an original equipment manufacturer (OEM) in the business of manufacture or supply of equipment for minimum 3-5 years. The firm should submit audited financial statements for latest three financial years in support of this claim.
3. The items being quoted should be of Original Manufacturer and no non-standard item should be quoted. All detailed specifications with make & model no. of the items accompanied by proper leaflets should be clearly mentioned and attached with the offer. In case of **proprietary** or patented item, necessary certificates in support of the same should be attached. The bidder must submit the Compliance Statement and Deviation Statement of technical specification.
4. The firm should have satisfactorily manufactured or supplied equipment, as requisitioned in this tender, to IITs/NITs/Govt. Departments/Semi Govt. Departments/PSU/Educational Institutions of National Importance etc. during the last 3(three) years ending the last day of March 2018.
5. **The rate quoted must be both in words and figures and F.O.R. / Destination National Institute of Technology Silchar -788010, Assam inclusive of all charges i.e. packing, forwarding, octroi, surcharge, insurance, installation, demonstration and other charges if any. Educational discount, if any should be indicated clearly. Tenderer(s) may note that the Government of India exempts this Institute from paying custom duty/excise duty. Charges of Custom Duty (after concession as per govt. of India), IGST, Custom Clearance without any fine /damarage/ penalty shall be paid by the Institute on actual basis subject to submission of original supporting bill/ vouchers. Necessary documentation like DSIR, CDE, GST Concession Certificate, Declaration Certificate,**

Authorization letter regarding transportation of cleared consignment up-to NIT Silchar shall be provided by the Institute on submission of Order Acceptance and Proforma Invoice. Necessary documents will be furnished if required on demand by the Tenderer(s). Rate quoted for any other destination shall not be accepted and the bid will summarily be rejected. All the custom clearing issues and delivery of ordered items up-to destination i.e. NIT Silchar must be handled by the supplier only.

6. Quoted rate should be inclusive of all taxes. Nothing extra will be paid by the Institution. If there is any increase / decrease of statutory taxes will be reimbursed accordingly.
7. **Payment:** Payment 100% shall be made only after receipt of ordered items as per specification and quantity and after successful installation, demonstration, training (where applicable) and commissioning.
 - **Payment:** In connections to foreign items payment shall be made through wire transfer / irrevocable Letter of Credit (90% through LC and 10% after receipt of ordered items as per specification and quantity and after successful installation, demonstration, training (where applicable) and commissioning).
8. Manufacturer's/Company's name, it's trademark should be mentioned in the tender and illustrative leaflets giving technical particulars, etc. should be attached in the tender.
9. Tenderer(s) registered with the State/Central Government must quote his registration numbers, if any, and submit a xerox copy of registration along with the tender.
10. Guarantee/Warranty period offered for the tendered item is to be clearly specified.
11. The rates to be quoted by the agency should be valid for a period of **6(six) months** after the deadline date specified in the tender.
12. The quantity against each item mentioned in the tender may vary according to the actual requirements at the time of placing Purchase Order.
13. **Each bidder should clearly specify that the bidder agrees to abide by the conditions of this tender document on their printed letter head duly sealed & signed by an authorized person.**
14. **Bid Price**
 - a) The contract shall be for the full quantity as described above. Corrections, if, shall be made by crossing out, initialing dating and rewriting.
 - b) The bidder should quote the total price for each item inclusive of packing and forwarding, all duties, levies, insurance, installation, demonstration and any other charges, etc. only taxes & (discount if any) should be mentioned separately.
 - c) The rates quoted by the bidder shall be fixed for the duration of the contract and shall not be subject to adjustment on any account.
15. Each bidder shall submit only one quotation.
16. All necessary documents shall be furnished along with the bid.
17. **Validity:** Tenders/Quotations shall remain valid for a period not less than **6 (six) months** after the deadline date specified for submission of tender.
18. **Packing**
 - a) The Supplier shall provide such packing of the Goods as is required to prevent their damage or deterioration during transit to their final destination as indicated in the Contract. 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 have to be taken into consideration, where appropriate, the remoteness of the Goods' final destination and the absence of heavy handling facilities at all points in transit.
 - b) The packing, marking and documentation within and outside the packages shall comply strictly with such special requirements as shall be provided for in the Contract including additional requirements.
19. **Evaluation of Quotations :**

NIT Silchar will evaluate and compare the tender/quotations determined to be substantially responsive i.e. which

- a) are properly signed
- b) Conform to the terms and conditions, and specifications.

20. **Award of contract:**

NIT Silchar will award the contract to the bidder whose tender/quotation has been determined to be substantially responsive and who has offered the lowest evaluated quotation price.

- a) The bidder whose bid is accepted will be notified of the award of contract by the NIT Silchar prior to expiration of the quotation validity period. The terms of the accepted offer shall be incorporated in the purchase order.
- b) Normal commercial warranty/guarantee shall be applicable to the supplied goods.
- c) The goods (both indigenous & imported) should be insured against theft, loss or breakage during transit till destination.
- d) Upon delivery of goods, the supplier shall submit Suppliers Invoice, Insurance certificate, Warranty Certificate, Installation Certificate, Performance Bank Guarantee (where applicable) or any other document as required/demand.

21. **Acknowledgement of the Purchase Order:** The supplier shall give an acknowledgement of the Purchase Order within 15(fifteen) days of the date of the Purchase Order. In case, the supplier fails to acknowledge the Purchase Order within the stipulated time, the Institute is at liberty to cancel the Purchase Order.

22. No alternations in tender forms shall be made by the bidder and if any such alteration is made, the tender is liable to be rejected.

a) Delivery Schedule and Penalty for Delay: Delivery of equipment should be made **within 30(thirty) days OR as per terms and condition of Purchase Order** from the date of issue of Purchase Order. **Penalty at the rate of 0.5% or part thereof of the order value per week, subject to a maximum of 2.5% will be imposed for delayed delivery and installation.**

23. **Demurrages and penalty, if any, paid by the supplier shall not be borne by the Institute.**

24. The tenders submitted shall clearly mention the name of the firm/person in whose favour the purchase order is to be placed.

25. Contact details of the person for all post sales/installation maintenance support should clearly be given with **Name & Designation, Phone No, Fax No, Mobile, E-mail and official address.**

26. National Institute of Technology Silchar is not liable for non-receipt of the tender forms in time due to wrong address/ any delivery delay of the mail service provider/ force majeure. Tender documents received after the last date and time for receiving tenders will be summarily rejected.

27. **Successful bidder shall give a performance security @10% or (as per Purchase Order) of the total order value in the form of Bank Guarantee.** The performance security shall be furnished along with the Bill / Invoice after the order for supply is placed and before the final payment. Validity of the Performance Security shall cover the warranty period.

- The proceeds of the Performance Security shall be payable to the purchaser as compensation for any loss resulting from the suppliers failure to complete its obligations under the contract.

28. All legal disputes shall be under the jurisdiction of the Silchar Courts of Cachar District in the state of Assam.



Registrar, NIT Silchar

DECLARATION

I / We hereby declare that no case is pending with the police/ court against the proprietor/ firm/ partner or the company (Agency). Also I /We have not been suspended / blacklisted by any PSU / Government Department / Financial Institution / Court.

(Signature & seal of the contractor)

Place:

Date:

NO DEVIATION CERTIFICATE

Notwithstanding anything mentioned in our bid, we hereby accept all the terms and conditions of this tender and we do not have any deviation to this tender enquiry. We hereby undertake and confirm that we have understood the scope of work properly and shall be carried out as mentioned in this tender enquiry.

(Signature & seal of the contractor)

Place:

Date:

BIDDERS DETAILS

Name of the Contractor /Party/ Firm	:	<input type="text"/>
Name of Authorized Representative	:	<input type="text"/>
Phone Nos.	:	<input type="text"/>
Mobile Nos.	:	<input type="text"/>
Fax No.	:	<input type="text"/>
E-Mail Address	:	<input type="text"/>
Web Site Address (If Any)	:	<input type="text"/>

(Signature & seal of the contractor)

Place:

Date:

TECHNO-COMMERCIAL BID

NAME OF THE WORK: Supply and Installation of at NIT Silchar					
TENDER NO. : NITS/PS-....., Dtd....., LOS :					
Sl. No.	Name of item with Specification, Make & Model	QTY.	Rate per Unit in	Taxes in %	Total Amount in
Sub Total Amount					
Discount (if any)					
Taxes (if any)					
Other Charges (if any)					
Grand Total Amount					
(AMOUNT IN WORDS)					

I/ we have gone through all the Special & General Conditions and the contractor's obligations enclosed with this tender document and agree to abide by these.

Note: In case of discrepancy in rates between figure & words the higher will be taken for evaluation of bid and lower value will be taken for award of work.

(Signature & seal of the contractor)

Place:

Date:

CHECK-LIST (TECHNICAL BID)

SUMMARY OF COMPLIANCE TO REQUIREMENT OF TENDER

Sl. No.	Description of Requirement	Yes / No / NA	Page No.
1.	Tender Cost Rs.1000/- (Non-refundable) in the form of Demand Draft in favour of "Director, NIT Silchar" in a separate envelope		
2.	EMD @2% of total bid value in the form of Demand Draft /Bank Guarantee in favour of "Director, NIT Silchar" in a separate envelope		
3.	Copy of Manufacturer/ Authorized Supplier Certificate		
4.	Audited financial statement for the last 3 years		
5.	Copy of the PAN card.		
6.	Copy of GST registration certificate		
7.	Copies of previous work order of similar work with completion certificate (if any)		
8.	Declaration certificate		
9.	No Deviation certificate		
10.	Bidder's details		
11.	Technical Specification		
12.	NSIC/SSI/MSME Certificate where applicable		
13.	All the pages of tender document have been signed		
14.	Price bid in separate sealed envelope.		
15.	Complete copy of Techno Commercial Bid submit along with the Price Bid.		

(Signature & seal of the contractor)

Place:

Date:

Sl. No. (1). Hybrid Thin Film Deposition System, Required Qty.01**Technical Specifications of Custom Fabricated Dual Chamber PVD System (Sputtering & Evaporation)**

Description: The multi-purpose thin film deposition unit will be comprised of a total of 2 chambers – one for (RF+DC) sputtering deposition assembly, second one for electron beam and thermal based deposition. This will have separate vacuum system for each chambers consisting of a Turbo Molecular pump and oil free scroll pump together with system of valves and vacuum measuring hardwares for simultaneous operation at a time. Details about the technical specifications are given below:

S.NO	Items	Specifications
1	MAGNETRON SPUTTERING CHAMBER	(A) VACUUM CHAMBER: <ul style="list-style-type: none"> ➤ Material of Construction (MOC): SS 304 grade /Better; ➤ Chamber has to be designed for sputter down mode with appropriate dimensions based on the given specifications to achieve vacuum level of order of 10^{-6} mbar ➤ Chamber size : Approximately 400 mm (W) X 400 mm (D) X 450 to 500 mm (H) [minimum requirement] ➤ Must be electro polished for better surface finish; ➤ Necessary ports required for Pumping, Magnetron ➤ Cathode, Gas Inlet, Vent, gauge, feedthrough, view port, port for substrate heaters and rotation mechanism etc.
		(B) MAGNETRONS: <ul style="list-style-type: none"> ➤ 2 No. of 3" Dia. indirectly water cooled circular magnetron cathodes with bellows for flexibility ➤ Con focal, Sputter Down Arrangement ➤ Provision for substrate to target distance Is required ➤ Shutters for magnetron cathodes.
		(C) Substrate Holder, Heater & Rotation: <ul style="list-style-type: none"> ➤ Capable of holding various dimensions of substrate ➤ Down to 5 mm x 5 mm pieces. ➤ Up to 100 mm diameter disc. ➤ Designed for long, trouble free operation. ➤ Rotation speed adjustable up to 20rpm. ➤ Substrate rotation from RT up to maximum temperature. ➤ DC and RF bias to substrate should be possible. ➤ A suitable Substrate Heater should be provided for varying substrate temperature from RT to a maximum of 500 Deg.C with a thermocouple and PID temperature controller. ➤ The substrate heater should be oxygen compatible up to maximum temperature.

			<ul style="list-style-type: none"> ➤ Temperature accuracy should be within ± 5 Deg.C ➤ Substrate rotational capability at elevated temperature. ➤ Simultaneous rotation & heating mechanism.
		(D)	<p><u>RF POWER SUPPLIES:</u></p> <ul style="list-style-type: none"> ➤ One number of RF 600 Watts Power Supply from a Reputed Make (imported) with auto matching network & necessary connectors and cables for magnetron sputtering. ➤ Frequency : 13.56 MHz ➤ There should be one provision for up-gradation in future of one 300W RF Power Supply for Co-evaporation
		(E)	<p><u>DC POWER SUPPLY:</u></p> <ul style="list-style-type: none"> ➤ 1 No. of DC 1 kW Power Supply of good quality with necessary cables and connectors for magnetron sputtering.
		(F)	<p><u>MASS FLOW CONTROLEERS:</u></p> <ul style="list-style-type: none"> ➤ Argon, Oxygen & Nitrogen: 01 No. Each and it should be from a Reputed Imported suppliers (Alicat/ Agilent/ Bronkhorst) ➤ Flow Range : 0 to 100 sccm ➤ Necessary VCR Fittings, with cables to be provided ➤ Digital Display
2	Electron Beam Evaporation Chamber	(A)	<p><u>VACUUM CHAMBER:</u></p> <ul style="list-style-type: none"> ➤ Material of Construction (MOC): SS 304 grade /Better; ➤ Chamber has to be designed for sputter down mode with appropriate dimensions based on the given specifications to achieve vacuum level of order of 5×10^{-7} mbar ➤ Chamber size : Approximately 400 mm (W) X 400 mm (D) X 450 to 500 mm (H) [minimum requirement] ➤ Must be electro polished for better surface finish; ➤ Necessary ports required for Pumping, evaporation sources, Gas Inlet, Vent, gauge, feedthrough, view port, port for substrate heaters and rotation mechanism etc.
		(B)	<p><u>Electron Beam Source</u></p> <p>One no. of E-beam evaporation source with following is required:</p> <ul style="list-style-type: none"> ➤ 4 no's of 4cc volume crucibles (each) ➤ Capability: 5 KV, Power: 3KW ➤ Beam deflection: 270° ➤ Integrated X-Y beam sweep coils ➤ Water cooling system ➤ Motorized turret indexer ➤ Quick release electron emitter assembly ➤ Dual water feed through. ➤ Flexible stainless steel make water pipes and water cooling connection system. ➤ Electron beam water flow switch

	<ul style="list-style-type: none"> ➤ Shutter for EB source
(C)	<p><u>Power Supply:</u> Power supply should comprise a free-standing power supply module and remote mounting high voltage gun control panel operational at 5KV and with the following:</p> <ul style="list-style-type: none"> ➤ Power Supply: should be operational at 200/220V, 3 phase, 50Hz. ➤ Digital display of high voltage and filament/emission currents ➤ Interconnecting cables ➤ Safety interlocks for air cooling, high vacuum, water cooling and turret rotation Easily movable power module ➤ Integral high voltage transformer ➤ Forced air cooling
(D)	<p><u>BEAM SWEEP:</u> X-Y beam sweep controller of independent control of the following parameters in both X and Y direction:</p> <ul style="list-style-type: none"> ➤ Beam position ➤ Beam sweep amplitude and frequency ➤ Sinusoidal, triangular or square waveforms ➤ LED displays to be provided for indication
(E)	<p><u>THERMAL EVAPORATION SOURCE:</u></p> <ul style="list-style-type: none"> ➤ 1 set of LT evaporation electrical feed through and evaporation source holder for evaporation made of electrolytic pure copper, with 200 A current carrying capacity for sector evaporation source holder to be provided as a standard which can accept Filament / Basket / Boat as evaporation source. ➤ One Number of 200 A power supply capable of delivering 200 A at 10 V, 100 A at 20 V ➤ Thyristor Controller in the input circuit of LT selector provides the output power variation. ➤ Digital panel meters provided for secondary current through current transformers. ➤ Shutter for Thermal source
(F)	<p><u>IB CLEANING:</u></p> <ul style="list-style-type: none"> ➤ One HT electrical feed through to carry power for ion cleaning should be provided. ➤ A bar type ion bombardment gadget should be fixed on the feedthrough to provide a uniform glow discharge. ➤ A 5000V DC open circuit, 3500 Volts at 50mA high reactance type λ transformer and solid state bridge rectifier should be provided. ➤ Thyristor based IB current controller with display should be there
(G)	<p><u>Substrate Holder, Heater & Rotation:</u></p> <ul style="list-style-type: none"> ➤ Capable of holding various dimensions of substrate ➤ Down to 5 mm X 5 mm pieces. ➤ Up to 100 mm diameter disc. ➤ Designed for long, trouble free operation. ➤ Rotation speed adjustable up to 20rpm.

			<ul style="list-style-type: none"> ➤ Substrate rotation from RT up to maximum temperature. ➤ A suitable Substrate Heater should be provided for varying substrate temperature from RT to a maximum of 500 Deg.C with a thermocouple and PID temperature controller. ➤ The substrate heater should be oxygen compatible up to maximum temperature. ➤ Temperature accuracy should be within ± 5 Deg.C ➤ Substrate rotational capability at elevated temperature. ➤ Simultaneous rotation & heating mechanism.
3	Vacuum Pumping System	(A)	<ul style="list-style-type: none"> ➤ Separate (independent) vacuum pumping system required for both the chambers. ➤ A Turbo molecular pump having suitable pumping speed (minimum 400 lit/sec) with suitable dry type backing/roughing pump (20 m³/hr or Higher) ➤ Ultimate Pressure: $\leq 5 \times 10^{-7}$ mbar to be achieved in each process chamber. ➤ Pfeiffer/ Agilent /Edwards /Alcatel make pumps are preferable.
		(B)	<p><u>HIGH VACUUM GATE VALVES:</u></p> <ul style="list-style-type: none"> ➤ Suitable size Electro pneumatically operated high vacuum gate valve for each process chamber for isolation of Turbo molecular pump.
		(C)	<p><u>VACUUM VALVES:</u></p> <ul style="list-style-type: none"> ➤ It shall provide vibration free operation and easy access for maintenance and leak tests. ➤ Electro pneumatic vacuum valves shall be must. ➤ All the valves are electro pneumatically operated.
		(D)	<p><u>SS Plumbing line & Collar</u></p> <ul style="list-style-type: none"> ➤ SS Plumbing line with flexible hoses & KF connections wherever required with necessary interlocks to be provided; ➤ Vacuum Collar required
		(E)	<p><u>VACUUM GAUGES:</u></p> <ul style="list-style-type: none"> ➤ Digital Pirani and Penning Gauges with display to be provided.
4	Deposition Controller		<ul style="list-style-type: none"> ➤ INFICON/Equivalent make thin film deposition controller for sequential deposition. ➤ Sensor Inputs: 2 ➤ Measurement Frequency range: 1 to 6.5 MHz (adjustable) ➤ Frequency resolution : +/- 0.012 Hz ➤ Frequency stability : +/- 2 ppm total, over 0 to 50° C ➤ Rate display resolution : 0.01 Angstrom/sec ➤ Processes : 100 processes, 1000 layers, 50 films, ➤ Interfaces : RS – 232 and USB standard
5	Control Console & Instrumentation	(A)	<ul style="list-style-type: none"> ➤ To house all the displays of Pumps, Gauges, Power Supplies, controller, Substrate heater, etc.,

			<ul style="list-style-type: none"> ➤ Should be easy for maintenance; ➤ Emergency push button switches to be provided.
6	Mounting Frame / Support Stand	(A)	<ul style="list-style-type: none"> ➤ E Beam Evaporation Chamber , Gate Valve, Sputtering Chamber assembly will be mounted on the strong supporting frame; ➤ Necessary pumping systems can be accommodated below the stand ➤ Must have castor wheels for mobility with arresting pads.
7	Water Chiller (Closed loop)	(A)	<ul style="list-style-type: none"> ➤ Suitable capacity Water chiller to be provided for the whole unit (wherever water supply is required like E Beam source, Magnetron guns, etc.,) with interlocks, tank, etc.,
8	Air Compressor		<ul style="list-style-type: none"> ➤ Reputed make suitable capacity air compressor for valves and shutters operation.
9	Warranty		<ul style="list-style-type: none"> ➤ 5 years from the date of commissioning and acceptance of equipment
10	Eligibility Criteria		<ul style="list-style-type: none"> ➤ Must have supplied minimum 2 nos. of similar equipments (<i>Dual Chamber Configuration</i>) to Government labs / Govt. Institutions / Universities, etc., including any one Indian Institute of Technology ➤ List of Organization names with user details to be submitted along with offer where similar type supplied earlier to above said institutions / Universities / etc. ➤ Company should have minimum 5 nos of supply reference of Sputtering Unit in Reputed Foreign Institute and Organization. ➤ Company should be ISO certified ➤ Company should provide Original Test report, Original Warranty certificate and Original Invoice with the system from OEM for all imported items ➤ Company should submit copy of Air way Bill for all imported items. ➤ Coating sample with Uniformity and Thickness measurement report should be submitted with the technical bid. ➤ Uniformity should achieve +/- 5% or better for 2 inch substrate in both chambers ➤ Company should submit Printed catalogue for all accessories like Electron Beam Gun, Power Supply, Pumps, Gauges etc along with the Technical bid
11	Utilities		<ul style="list-style-type: none"> ➤ Details to be provided in the offer for space, power supply, gases, etc for system operation
12	Drawings		<ul style="list-style-type: none"> ➤ Conceptual Drawings (exm: schematic drawing

			of whole unit) and Technical Brochures must be submitted along with offer; ➤ Drawings to be submitted after approval in case P.O. is received prior to manufacture
13	Acceptance		➤ Multi layer thin film deposition must be demonstrated on the provided samples by Sputtering, Evaporation Method (individual) or Both methods.
14	Manuals		➤ Operation Manual to be given after installation and acceptance of equipment
15	User Training		➤ Training for 1-2 users from NIT Silchar should be provided to make them well familiar with the operation of various components and successful growth of the thin films using the given deposition units.
16	Associated Accessories and parts should be supply with the system		<ul style="list-style-type: none"> ➤ Complete O-rings set: 2 nos ➤ Tungsten Helical - 2 packs ➤ Tungsten Baskets - 2 packs ➤ 6 MHz Gold Crystal - 10 nos ➤ EB3 filaments - 10 nos ➤ Moly boat - 10Nos ➤ Graphite crucible – 5 nos ➤ Molybdenum crucible – 5 nos ➤ Sputter Targets (99.99% Purity) – Cu (1 no), Al (1 no), ITO (1 no), TiO₂ (1 no)

Mandatory Spares (Quoted separately):

PLC & HMI:

- Programmable Logic Controller of any Reputed make to be provided in the system for complete automation of vacuum cycle.
- PLC has provided with necessary number of inputs/outputs to communicate with the system interface, ensuring accurate and prompt feedback on actual parameters.
- One number of 10 inch HMI with touch screen to be provided. All the vacuum pumps & gauges can be controlled from HMI.
- In case of electrical failure emergency stop and logical relays programmed to close all valves.

DC POWER SUPPLY:

One number of additional 1KW DC power supply for substrate biasing facility.

EB POWER SUPPLY:

One number of M/s. Telemark make Electron Beam power supply Model: ST-4 in place of above mentioned power supply

RF POWER SUPPLY:

One number of Imported make 300 W RF Power Supply.

TARGETS (99.99 % Purity):

ZnO (1 no), SnO₂ (1 no), Al₂O₃ (1 no), In (1 no)