

Online Bids

(through E-Procurement Portal of CPPP)

are invited

for

PART A: Analytical Transmission Electron Microscope

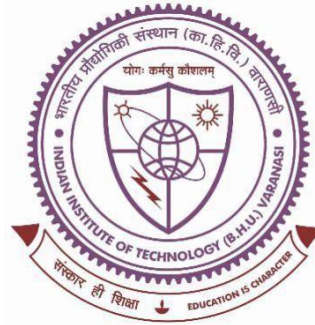
Part B: Ion Beam Milling System

Part C: Dimple grinder with microscope

Tender No.: IIT (BHU)/Met-JB/DST-FIST/2021-22/02, Dated 05-07-2022

Last Date of Submission: 28/07/2022 (04.00 PM)

Tender opening: 29/07/2022 (04.00 PM)



**Department of Metallurgical Engineering
Indian Institute of Technology(Banaras Hindu
University)
Varanasi-221005**

E-mail: jbasu.met@iitbhu.ac.in

**INDIAN INSTITUTE OF TECHNOLOGY
(BANARAS HINDU UNIVERSITY)
VARANASI - 221005**

DEPARTMENT/SCHOOL/CENTRE: DEPARTMENT OF METALLURGICAL ENGINEERING, IIT (BHU)

Advertised Tender Enquiry Documents

(NOTICE INVITING TENDER)

IIT (BHU) Varanasi invites online tender from manufacturers (or their “authorized” dealers that they have been authorized to quote in response to this NIT) of the following items are invited:

Sl. No.	Tender No. and Last Date	Specifications & Quantity of the item	Earnest Money Deposit to be submitted
1.	IIT (BHU)/Met-JB/DST-FIST/2021-22/02, Dated 05-07-2022 Last Date : 28/07/2022 (04.00 PM)	Specification : As per ANNEXURE-1 Quantity - 01	“Bid Security DeclarationForm” as per as per Annexure-A

Tender Documents may be downloaded from Central Public Procurement Portal <http://eprocure.gov.in/eprocure/app>. Tenderers can access tender documents on the CPP Portal. Select the appropriate tender and fill them with all relevant information and submit the completed tender document online on the website <http://eprocure.gov.in/eprocure/app> as per the schedule given in the next page.

Aspiring Bidders who have not enrolled / registered in e-procurement should enroll / register before participating through the website <http://eprocure.gov.in/eprocure/app>. The portal enrolment is free of cost. Bidders are advised to go through instructions provided at „Instructions for online Bid Submission“.

No manual bids will be accepted. All quotation (both Technical and Financial should be submitted in the E- procurement portal).

The Tender should be addressed to **Dr. Joyusrya Basu, Principal Investigator, Project No: R&D/SA/DST-FIST/Met/Scm./20-21/01, Department of Metallurgical Engineering, IIT (BHU), Varanasi-221005** and should be submitted online on or before the date and time of Bid opening date as mentioned in critical date sheet.

The Institute shall not be responsible for any delay in submitting online Bids. The Institute reserves the right to accept or reject any bid, cancel the Tender without assigning any reason thereof. No correspondence in this regard will be entertained.

**Dr. Joysurya Basu
Principal Investigator
Project No: R&D/SA/DST-
FIST/Met/Scm./20-21/01
Department of Metallurgical Engg,
IIT (BHU), Varanasi-221005**

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DEPARTMENT/SCHOOL/CENTRE: DEPARTMENT OF METALLURGICAL ENGINEERING, IIT (BHU)

**TENDER DOCUMENT FOR
PART A: Analytical Transmission Electron Microscope
Part B: Ion Beam Milling System
Part C: Dimple grinder with microscope**

CRITICAL DATA SHEET

Name of Organization	Indian Institute of Technology (Banaras Hindu University)
Tender	Open
Type(Open/Limited/EOI/Auction/Single) Type/Form of Contract (Work/Supply/ Auction/ Service/ Buy/ Empanelment/ Sell)	SUPPLY
Date of Issue/Publishing Original Tender	07/07/2022(04:00 PM)
Document Download Start Date	07/07/2022(04:00 PM)
Document Download End Date	28/07/2022 (04:00 PM)
Pre Bid Meeting Date* *Queries, if any, to be discussed, MUST be emailed to jbasu.met@iitbhu.ac.in , before the date of Pre Bid meeting for consideration.	NO PREBID MEETING Clarification Start Date: 07/07/2022 (05:00 PM) Clarification End Date: 14/07/2022 (05:00 PM)
Corrigendum, if any	If any - Will be intimated
Last Date and Time for Uploading of Bids	28/07/2022 (04:00 PM)
Date and Time of Opening of Technical Bids	29/07/2022 (04:00 PM)
Tender Processing Fee (including GST as applicable)	Rs. 5900/- (For Tender Processing Fee) (To be paid through RTGS/NEFT) as per the following details: Name of Account - Registrar, IIT(BHU) Name of the Bank - State Bank of India Name of Branch - IT, BHU, Varanasi Account No. - 32778803937 IFSC Code - SBIN0011445 The proof of payment must be enclosed with Technical Bid.
EMD	Bid Security Declaration Form as per Annexure-A
No. of Covers (1/2/3/4)	02
Bid Validity days	180 days (From last date of opening of tender)
Address for Communication	Dr. Joysurya Basu Principal Investigator Project Code: R&D/SA/DST-FIST/Met./Scm./20-21/01 Department of Metallurgical Engineering, IIT (BHU), Varanasi-221005, U.P., India
Contact No. & E-mail Address	jbasu.met@iitbhu.ac.in

**INDIAN INSTITUTE OF TECHNOLOGY
(BANARAS HINDU UNIVERSITY)
VARANASI - 221005**

DEPARTMENT/SCHOOL/CENTRE: DEPARTMENT OF METALLURGICAL ENGINEERING, IIT (BHU)

**TENDER DOCUMENT FOR
PART A: Analytical Transmission Electron Microscope
Part B: Ion Beam Milling System
Part C: Dimple grinder with microscope**

INVITATION FOR BIDS

1. Online bids are invited from eligible bidders for the following:

Sl. No.	Tender no.	Specifications & quantity of the item	Earnest Money Deposit (EMD)
1.	IIT (BHU)/Met-JB/DST-FIST/2021-22/02, Dated 05-07-2022 Last Date : 28/07/2022 (04.00 PM)	Specification : As per ANNEXURE-1 Quantity - 01	"Bid Security Declaration Form" as per as per Annexure-A

- Interested eligible Bidders may obtain further information from IIT (BHU) website: www.iitbhu.ac.in/iitnotifications/purchase_enquiries/ or from Central Public Procurement Portal (CPPP) <https://eprocure.gov.in/eprocure/app>.
- Intending bidders are advised to visit IIT (BHU) website www.iitbhu.ac.in/iitnotifications/purchase_enquiries/ and CPPP website <https://eprocure.gov.in/eprocure/app> regularly till closing date of BID submission of tender for any corrigendum / addendum/ amendment.
- Tender Processing Fee is to be deposited electronically by RTGS/NEFT in the account of Registrar, IIT (BHU) in the Bank details mentioned above. Bidders are required to submit the scan copy of payment receipt details of Tender Processing Fees payment at the time of Bid Preparation.
- This Tender Document contains the following:
 - Instructions for Online Bid Submission
 - Instruction to Bidders
 - General conditions of contract (GCC)
 - Special Condition of Contracts
 - Check-list for Bid/Tender submission
 - Declaration Certificate
 - Technical specifications for the complete project (Annexure 1)
 - Compliance Sheet

SECTION 1: INSTRUCTION FOR ONLINE BID SUBMISSION

As per the directives of Department of Expenditure, this tender document has been published on the Central Public Procurement Portal ([URL:http://eprocure.gov.in/eprocure/app](http://eprocure.gov.in/eprocure/app)). The bidders are required to submit soft copies of their bids electronically on the CPP Portal, using valid Digital Signature

Certificates. The instructions given below are meant to assist the bidders in registering on the CPP Portal, prepare their bids in accordance with the requirements and submitting their bids online on the CPP Portal.

More information useful for submitting online bids on the CPP Portal may be obtained at:

<http://eprocure.gov.in/eprocure>

Registration

1. Bidders are required to enroll on the e-Procurement module of the Central Public Procurement Portal (URL:<http://eprocure.gov.in/eprocure/app>) by clicking on the link “Click here to Enroll”. Enrolment on the CPP Portal is free of charge.
2. As part of the enrolment process, the bidders will be required to choose a unique username and assign a password for their accounts.
3. Bidders are advised to register their valid email address and mobile numbers as part of the registration process. These would be used for any communication from the CPP Portal.
4. Upon enrolment, the bidders will be required to register their valid Digital Signature Certificate (Class II or Class III Certificates with signing key usage) issued by any Certifying Authority recognized by CCA India (e.g. Sify / TCS / nCode / eMudhra etc.), with their profile.
5. Only one valid DSC should be registered by a bidder. Please note that the bidders are responsible to ensure that they do not lend their DSCs to others which may lead to misuse.
6. Bidder then logs in to the site through the secured log-in by entering their user ID / password and the password of the DSC / eToken.

2. Searching for Tender Documents

1. There are various search options built in the CPP Portal, to facilitate bidders to search active tenders by several parameters. These parameters could include Tender ID, organization name, location, date, value, etc. There is also an option of advanced search for tenders, wherein the bidders may combine a number of search parameters such as organization name, form of contract, location, date, other keywords etc. to search for a tender published on the CPP Portal.
2. Once the bidders have selected the tenders they are interested in, they may download the required documents / tender schedules. These tenders can be moved to the respective „My Tenders“ folder. This would enable the CPP Portal to intimate the bidders through SMS / e-mail in case there is any corrigendum issued to the tender document.
3. The bidder should make a note of the unique Tender ID assigned to each tender, in case they want to obtain any clarification / help from the Helpdesk.

3. Preparation of Bids

1. Bidder should take into account any corrigendum published on the tender document before submitting their bids.
2. Please go through the tender advertisement and the tender document carefully to understand the documents required to be submitted as part of the bid. Please note the number of covers in which the bid documents have to be submitted, the number of documents - including the names and content of each of the document that need to be submitted. Any deviations from these may lead to rejection of the bid.
3. Bidder, in advance, should get ready the bid documents to be submitted as indicated in the tender document / schedule and generally, they can be in PDF / XLS / RAR / DWF formats. Bid documents may be scanned with 100 dpi with black and white option.
4. To avoid the time and effort required in uploading the same set of standard documents which are required to be submitted as a part of every bid, a provision of uploading such standard documents (e.g. PAN card copy, annual reports, auditor certificates etc.) has been provided to the bidders. Bidders can use “My Space” area available to them to upload such documents. These documents may be directly submitted from the “My Space” area while submitting a bid, and need not be uploaded again and again. This will lead to a reduction in the time required for bid submission process.

5. Submission of Bids

1. Bidder should log into the site well in advance for bid submission so that he/she upload the bid in time i.e. on or before the bid submission time. Bidder will be responsible for any delay due to other issues.
2. The bidder has to digitally sign and upload the required bid documents one by one as indicated in the tender document.
3. Bidder has to select the payment option as “on-line” to pay the tender processing fee as applicable and enter details of the instrument. Whenever, Tender Processing Fees is sought, bidders need to pay the tender processing fee on-line through RTGS.
4. A standard BoQ format has been provided with the tender document to be filled by all the bidders.
Bidders are requested to note that they should necessarily submit their financial bids in the format provided and no other format is acceptable. Bidders are required to download the BoQ file, open it and complete the white coloured (unprotected) cells with their respective financial quotes and other details (such as name of the bidder). No other cells should be changed. Once the details have been completed, the bidder should save it and submit it online, without changing the filename. If the BoQ file is found to be modified by the bidder, the bid will be rejected.
5. The server time (which is displayed on the bidders’ dashboard) will be considered as the standard time for referencing the deadlines for submission of the bids by the bidders, opening of bids etc. The bidders should follow this time during bid submission.
6. All the documents being submitted by the bidders would be encrypted using PKI encryption techniques to ensure the secrecy of the data. The data entered cannot be viewed by unauthorized persons until the time of bid opening. The confidentiality of the bids is maintained using the secured Socket Layer 128 bit encryption technology. Data storage encryption of sensitive fields is done.
7. The uploaded tender documents become readable only after the tender opening by the authorized bid openers.
8. Upon the successful and timely submission of bids, the portal will give a successful bid submission message & a bid summary will be displayed with the bid no. and the date & time of submission of the bid with all other relevant details.
9. Kindly add scanned PDF of all relevant documents in a single PDF file of compliance sheet.

5. Assistance to Bidders

1. Any queries relating to the tender document and the terms and conditions contained therein should be addressed to the Tender Inviting Authority for a tender or the relevant contact person indicated in the tender.
2. Any queries relating to the process of online bid submission or queries relating to CPP Portal in general may be directed to the 24x7 CPP Portal Helpdesk.

6. General Instructions to the Bidders

1. The tenders will be received online through portal <http://eprocure.gov.in/eprocure/app> . In the Technical Bids, the bidders are required to upload all the documents in **.pdf format**.
2. Possession of a Valid Class II/III Digital Signature Certificate (DSC) in the form of smart card/e-token in the company's name is a prerequisite for registration and participating in the bid submission activities through <https://eprocure.gov.in/eprocure/app>. Digital Signature Certificates can be obtained from the authorized certifying agencies, details of which are available in the web site <https://eprocure.gov.in/eprocure/app> under the link “Information about DSC”.
3. Tenderer are advised to follow the instructions provided in the „Instructions to the Tenderer for the e-submission of the bids online through the Central Public Procurement Portal for e Procurement at <https://eprocure.gov.in/eprocure/app>.

SECTION 2: INSTRUCTIONS TO BIDDERS

A. Introduction

1. Scope of Work

Supply of **PART A: Analytical Transmission Electron Microscope; Part B: Ion Beam Milling System and Part C: Dimple grinder with microscope.**

2. Cost of Bidding

The Bidder shall bear all costs associated with the preparation and submission of its bid, and "the Purchaser", will in no case be responsible or liable for these costs, regardless of the conduct or outcome of the bidding process.

B. The Bidding Documents

3. Tender Processing Fees

The Tender Processing fees (Rs.5900/-) should be submitted ONLINE as per the details mentioned above. Further, the proof of payment must be uploaded with Technical Bid. The exemption will be applicable as per Govt. of India norms.

4. Content of Bidding Documents

The goods required, bidding procedures and contract terms are prescribed in the bidding documents. In addition to Invitation of Bids, the bidding documents include:

- (a) Instructions for Online Bid Submission
- (b) Instruction to Bidders (ITB);
- (c) General Conditions of Contract (GCC);
- (d) Special Conditions of Contract (SCC)
- (d) Schedule of requirements;
- (e) Tender form (technical bid).
- (f) Tender form (financial bid)

The Bidder is expected to examine all instructions, forms, terms, and specifications in the bidding documents. Failure to furnish all information required by the bidding documents or submission of a bid not substantially responsive to the bidding documents in every respect will be at the Bidder's risk and may result in rejection of its bid.

5. Amendment of Bidding Documents

At any time prior to the deadline for submission of bids, the Purchaser may, for any reason, whether at its own initiative or in response to a clarification requested by a prospective bidder, modify the bidding documents by amendment.

All prospective bidders who have received the bidding documents will be notified of the amendment in writing, which will be binding on them.

In order to allow prospective bidders reasonable time within which to take the amendment into account in preparing their bids, the Purchaser, at its discretion, may extend the deadline for the submission of bids.

C. Preparation of Bids

6. Language of Bid

The bid prepared by the Bidder, as well as all correspondence and documents relating to the bid exchanged by the Bidder and the Purchaser shall be written in English language.

7. Documents Comprising the Bid

Techno commercial un-priced bid and priced Bids: The bids are to be submitted in two parts i.e. Techno commercial un-priced bid and priced Bids.

(a) Techno commercial un-priced bid along with “**Bid Security Declaration Form**” (submitted ONLINE in the aforementioned bank account of Institute) as shown in invitation to bids shall be submitted through CPP Portal. If the proof of “**Bid Security Declaration Form**” is not received along with the technical bid, such bid will not be considered. The samples (if required) of all the items shown in the schedule of requirements of each tender should also accompany the techno commercial un-priced bid in a separate sealed envelope.

(b) Priced bid.

Techno commercial un-priced bid: The Techno commercial un-priced bid prepared by the bidder shall be provided in the following Model Response format:

Model Response format

- (a) Standing of each Bidder Manufacturer/Dealer and past experience in supply of the material (certificates to be enclosed), proof of manufacturing Unit/Dealership alongwith all the documents required for proving the credentials regarding the fulfilment of essential pre-bid criteria.
- (b) List of other Govt. Departments, Public Sector units and Central Autonomous Bodies for which the bidder is supplying material or having the similar type of contracts and a certificate regarding the satisfactory performance of the contract (In the Annexure III format).
- (c) Copy of the audited balance sheet of the vendor for the previous financial year indicating the turnover in supply of the relevant materials/service.
- (d) Details of Permanent Account Number and latest income tax clearance certificate.
- (e) Details of GST No. along with a copy of certificate to be attached.
- (f) Submission of samples if required, for all items indicated in the schedule of requirements. The make of items proposed to be supplied should be indicated in the format of the schedule of requirements and submitted along with the techno commercial un-priced bid without indicating the pricing components.
- (g) Willingness to execute all orders which are placed to meet emergency requirement on priority basis. The Bidder shall note that standards for workmanship, material and equipment, and references to brand names designated by the Purchaser in the schedule of requirements are intended to be descriptive only and not restrictive. The Bidder may substitute alternative standards, brand names and/or catalogue numbers in his bid, provided that it demonstrates to the Purchaser's satisfaction that the substitutions ensure substantial equivalence to those designated in the Technical Specifications.

Price Bid

The price bid shall comprise the techno commercial bid along with the price component indicating the Unit prices for each and every item indicated in the schedule of requirements (Annexure 1).

- (a) The prices quoted must be net per unit as shown in the Schedule and must include all charges for delivery at the designated stores i.e. F.O.R. IIT (BHU), Varanasi and should be mentioned clearly.
- (b) The rate must be stated for each item separately both in words and figures. If there is a discrepancy between the price quoted in word and figures the higher price quoted will be treated as final.
- (c) Quoted prices should be firm and inclusive of taxes/ custom duties, freight and forwarding charges, handling charges, loading and unloading charges, and insurance charges etc. However, the prices must be reflected clearly in BoQ format by mentioning basic rate, GST, Freight charges etc. **The Institute will not provide any custom exemption certificate. Custom clearance and related expenditure is responsibility of the vendor/supplier.**
- (d) The prices once accepted by the Institute shall remain valid till the successful execution of the order and till supplies is fully effected and accepted or **12 months** from the date of acceptance of tender whichever is later. The Institute shall not entertain any increase in the rates during the period.

8. Bid Prices

The Bidder shall indicate on the Schedule of requirements (BoQ), the unit prices of the goods it proposes to supply under the Contract and enclose it with the priced bid.

Prices indicated on the Price Schedule shall be entered separately in the following manner:

- (i) The prices quoted must be net per unit as shown in the schedule of requirements and must include all charges for delivery at the designated stores.
- (ii) Any Indian duties, GST and other taxes which will be payable on the goods, if this Contract is awarded;

Prices quoted by the Bidder shall be fixed during the Bidder's performance of the Contract and not subject to variation on any account.

9. Bid Currencies

Prices shall be quoted in Indian Rupees only.

10. Period of Validity of Bids

Bids shall remain valid for 180 days after the date of bid opening prescribed by the Purchaser. A bid valid for a shorter period shall be rejected by the Purchaser as non-responsive.

In exceptional circumstances, the Purchaser may solicit the Bidder's consent to an extension of the period of validity. The request and the responses thereto shall be made in writing. A Bidder granting the request will not be required nor permitted to modify the bid.

Bid evaluation will be based on the bid prices without taking into consideration the above modifications.

D. Submission of Bids

11. The tender has to be submitted ONLINE before the due date. The offers received after the due date and time will not be considered. **No manual bids will be considered.**

12. Deadline for Submission of Bids

Bids must be received by the Purchaser ONLINE not later than the time and date specified in the Invitation for Bids.

The Purchaser may, at his discretion, extend this deadline for submission of bids by amending the bid documents in which case all rights and obligations of the Purchaser and Bidders previously subject to the deadline will thereafter be subject to the deadline as extended.

13. Late/Delayed Bids

The offers received after the due date and time will not be considered.

14. Modifications and Withdrawal of Bids

The Bidder may modify or withdraw its bid after the ONLINE bid's submission, as per the provision of CPP Portal.

No bid may be modified subsequent to the deadline for submission of bids. No documents will be accepted in support of essential pre-bid criteria after the last date of submission of bids.

No bid may be withdrawn in the interval between the deadline for submission of bids and the expiry of the period of bid validity specified by the Bidder on the bid form.

E. Bid Opening and Evaluation of Bids

15. Opening of Techno commercial un-priced Bids

The purchaser will open all techno commercial un-priced bids in the first instance.

16. Clarification of Bids

During evaluation of the bids, the purchaser may, at its discretion, ask the Bidder for clarification of its bid. The request for clarification and the response shall be in writing and no change in price or substance of the bid shall be sought, offered or permitted.

No Bidder shall contact the purchaser on any matter relating to its bid from the time of the bid opening to the time the contract is awarded. If the Bidder wishes to bring additional information to the notice of the Institute it should be done in writing.

Any effort by a Bidder to influence the purchaser in its decisions on bid evaluation, bid comparison or contract award decisions may result in rejection of the Bidder's bid.

17. Evaluation of Techno commercial un-priced Bid

Prior to the detailed technical evaluation, the purchaser will determine the substantial responsiveness of each bid. A substantially responsive bid is one, which conforms to all the terms and conditions of the Bidding Documents without material deviations and meets all the essential pre-bid criteria. If any bidder does not meet the essential pre-bid criteria as laid down in the Instruction to Bidders, then his bid will be summarily rejected. No documents will be accepted in support of essential pre-bid criteria after the last date of submission of bids.

The purchaser will reject a bid determined as not substantially responsive.

The bidders may be called for discussion and may be allowed to modify their technical bids to suit the organization's requirement. The idea is to arrive at a threshold level of acceptability above which all the bidders shall be treated on par. Those whose technical specifications do not reach the threshold level of acceptability shall be rejected as technically unsuitable. The price bids of the bidders who finally emerge as technically acceptable shall be opened, evaluated and the contract awarded to the lowest evaluated bidder.

The bidders short-listed by the purchaser based on meeting the essential pre-bid criteria and detailed evaluation regarding satisfying the technical criteria laid down in this tender document may be called for detailed discussions with a team selected for the purpose, at a specified date, time and venue, if needed.

18. Opening of Priced Bids

The Purchaser will open the Priced Bids of only those bidders who meet the essential pre-bid criteria and whose techno commercial un-priced bids have been found to be substantially responsive.

The priced Bids of the technically qualified bidders shall be opened by the tender committee.

19. Evaluation and Comparison of priced Bids

Arithmetical errors will be rectified on the following basis: If there is a discrepancy between words and figures, whichever is the higher of the two shall be taken as bid price. If the Vendor does not accept the correction of errors, its bid will be rejected

Bidders shall state their bid price for the payment schedule outlined in the Clause 14 of General Conditions of Contract. Bids will be evaluated on the basis of this base price. Bidders are, however, permitted to state an alternative payment schedule and indicate the reduction in bid price they wish to offer for such alternative payment schedule. The purchaser may consider the alternative payment schedule offered by the selected Bidder but it may not be binding on the purchaser.

The purchaser, at its option may ask some more bidders to match the rates of the lowest bidder for creating parallel suppliers.

The currency that shall be used for bid evaluation and comparison purposes to convert all bid prices expressed in various currencies into a single currency is: **Indian Rupees**

The source of exchange rate shall be: **Reserve Bank of India/Any other authentic source.**

The date for the exchange rate shall be: **Last day for submission of Bids.**

20. Purchasers right to accept any bid and to reject any bid or all bids

The Purchaser reserves the right to accept or reject any bid, and to annul the bidding process and reject all bids at any time prior to award of Contract, without thereby incurring any liability to the affected Bidder or bidders or any obligation to inform the affected Bidder or bidders of the grounds for the Purchaser's action.

21. Award Criteria

- i. IIT (BHU) shall award the contract to the technically qualified eligible BIDDERS whose bid has been determined as the lowest evaluated commercial bid.
- ii. If more than one BIDDERS happens to quote the same lowest price, IIT (BHU) reserves the right to award the contract to more than one BIDDERS or any BIDDERS.

22. Notification of Award

Prior to the expiration of the period validity, the purchaser will notify the successful Bidder in writing by letter or by fax, to be confirmed in writing by speed post or hand delivered letter, that its bid has been accepted.

23. Factors Affecting the Award of Supply

The bidder should have its own Contract support facilities. The support facilities should be fully owned and managed by the bidder.

Conformity with the Request for Bid/Tender required and conditions.

The assessment based on the response to Model Response Outline.

The assessment of the capability of the bidder to meet the terms and conditions.

The bidders must have executed similar orders, for which the bidder is quoting, as indicated in clause 1 for Govt./Semi-Govt./Autonomous Organizations.

The cost and the discount offered, if any.

24. Fall clause

The price quoted by the supplier should not be higher than the maximum retail price, if any, for the stores and the same shall not be higher than the price usually charged by the supplier for stores of the same nature, class or description to any other purchaser.

The price charged for the stores supplied under the contract by the supplier shall in no event exceed the lowest price at which the supplier sells the stores of identical description to any other person during the period till performance of all supply orders placed during the currency of the contract is completed. If at any time during the period the supplier reduces the sale price of such stores or sells such stores to any other person including his dealers at a price lower than the price chargeable under the contract, he shall forthwith notify such reduction or sale to the purchaser and the price payable under the contract for these items of stores supplied after the date of coming into force of such reduction or sale shall stand correspondingly reduced.

If it is discovered that the supplier has contravened the above conditions, then without prejudice to any other action which might be taken against him, it shall be lawful for the purchaser to (a) revise the price at any stage so as to bring it in conformity with sub-clause(i) above, or (b) to terminate the contract and purchase the items of stores at the risk and cost of the supplier and in that event the provisions of Clause 28 of General Conditions of Contract shall, as far as possible, be applicable or recover the loss.

SECTION 3 : GENERAL CONDITION OF CONTRACTS

1. Definitions

In this Contract, the following terms shall be interpreted as indicated:

- (a) "The order" means the agreement entered into between the Purchaser and the Supplier including all the attachments and appendices and all documents incorporated as per notification of award.
- (b) "The Contract Price" means the price payable to the Supplier under the Contract for the full and proper performance of its contractual obligations;
- (c) "The Goods" means all the items, which the Supplier is required to supply to the Purchaser under the Contract;
- (d) "Services" means services ancillary to the supply of the Goods, such as transportation and insurance, and any other incidental services training and other obligations of the Supplier covered under the Contract;
- (e) "GCC" means the General Conditions of Contract contained in this section.
- (f) "The Purchaser" means the organization purchasing the Goods i.e. IIT (BHU), VARANASI.
- (g) "The Purchaser's country" is India.
- (h) "The Supplier" means the individual or firm supplying the Goods and Services under this Contract.
- (i) "Day" means calendar day.

2. Application

These General Conditions shall apply to the extent that they are not superseded by provisions in other parts of the Contract.

3. Standards

The Goods supplied under this Contract shall conform to the standards mentioned in the Technical Specifications, and, when no applicable standard is mentioned, to the authoritative standard appropriate to the Goods' country of origin and such standards shall be the latest issued by the concerned Institution.

4. Use of Contract Documents and Information

The Supplier shall not, without the Purchaser's prior written consent, disclose the Contract, or any provision thereof, or any specification, plan, drawing, pattern, sample or information furnished by or on behalf of the Purchaser in connection therewith, to any person other than a person employed by the Supplier in performance of the Contract. Disclosure to any such employed person shall be made in confidence and shall extend only so far as may be necessary for purposes of such performance.

The Supplier shall not, without the Purchaser's prior written consent, make use of any document or information except for purposes of performing the Contract.

Any document, other than the Contract itself, shall remain the property of the Purchaser and shall be returned (in all copies) to the Purchaser on completion of the Supplier's performance under the Contract if so required by the Purchaser.

5. Patent Rights

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

6. Submission of the bids.

All bids complete in all respect must be submitted online on or before the Bid Closing date and time as mentioned on Critical Data Sheet. Tenders received without Bid Declaration Form as EMD etc. shall be rejected.

Tender documents are available on IIT (BHU) website: www.iitbhu.ac.in/iitnotifications/purchase_enquiries/ or from Central Public Procurement Portal (CPPP) <https://eprocure.gov.in/eprocure/app>.

Interested bidders may submit their bid through Central Public Procurement Portal (CPPP) <https://eprocure.gov.in/eprocure/app>.

7. Inspections and Tests

The Purchaser or its representative shall have the right to inspect and/or to test the Goods to confirm their conformity to the Contract specifications at no extra cost to the Purchaser.

The inspections and tests may be conducted on the premises of the Supplier or its subcontractor(s), at point of delivery and/or at the Goods final destination. If conducted on the premises of the Supplier or its subcontractor(s), all reasonable facilities and assistance, including access to drawings and production data shall be furnished to the inspectors at no charge to the Purchaser.

Should any inspected or tested Goods fail to conform to the specifications, the Purchaser may reject the goods and the Supplier shall either replace the rejected Goods or make alterations necessary to meet specification requirements free of cost to the Purchaser.

The Purchaser's right to inspect, test and, where necessary, reject the Goods after the Goods' arrival at Project Site shall in no way be limited or waived by reason of the Goods having previously been inspected, tested and passed by the Purchaser or its representative prior to the Goods shipment.

Nothing in GCC Clause 7 shall in any way release the Supplier from any warranty or other obligations under this Contract.

8. Consequences of rejection

If in the event the stores are rejected by the purchaser at the destination and the supplier fails to make satisfactory supplies within the stipulated period of delivery, the purchaser will be at liberty to:

- (a) Allow the supplier to resubmit the stores in replacement of those rejected, within a specified time without any extra cost to the purchaser or
- (b) Reject the material, which shall be final and binding on the contractor.
- (c) Procure the rejected materials of comparable quality from the open market/Govt. stores and the supplier shall be liable to pay the difference in price over the RC prices or get the amount adjusted from the outstanding bills of the supplier, if any or PBG.

9. Packing

The Supplier shall provide such packing of the Goods as is required to prevent their damage or deterioration during transit to their final destination 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 take into consideration, where appropriate, the remoteness of the Goods' final destination and the absence of heavy handling facilities at all points in transit.

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, in any subsequent instructions ordered by the Purchaser.

10. Delivery and Documents

The Supplier shall make delivery of the Goods **within 60 days from the placement of purchase order in pursuance of the notification of award & satisfactory installation/commissioning should be within 70 days from the placement of Purchase Order.**

The purchase order would be placed after assessing the requirements on quarterly basis. However, the supplier shall also arrange to execute all orders on priority basis which would be placed to meet any emergent requirements.

In case the purchaser decides to conclude parallel rate contracts, then the requirements would be split on different firms on equitable basis as per the discretion of the purchaser.

The delivery of Stores shall be affected at the premises of the Institute free of all delivery charges and within the stipulated time and as may be elucidated in the confirmed order, accompanied by a delivery challan. No extension of time for delivery of Stores shall normally be accorded.

Vendor should mention all pre-installation requirements if any with quantity.

The supplier shall mail the following documents to the purchaser with a copy to the insurance company:

1. 3 Copies of the Supplier invoice showing contract number, goods' description, quantity unit price, total amount;
2. Installation Certificate
3. Insurance Certificate if applicable;
4. Manufacturer's/Supplier's warranty certificate;
5. Inspection Certificate issued by the nominated inspection agency, if any
6. Supplier's factory inspection report; and
7. Certificate of Origin (if possible by the beneficiary);
8. The above documents should be received by the Purchaser before arrival of the Goods (except where the Goods have been delivered directly to the Consignee with all documents) and, if not received, the Supplier will be responsible for any consequent expenses.

Time and date of delivery - the essence of the contract: The time for and the date of delivery of the stores stipulated shall be deemed to be of the essence of the contract and delivery must be completed not later than the date(s) specified.

11. Insurance

The Goods supplied under the Contract shall be fully insured in Indian Rupees against loss or damage incidental to manufacture or acquisition, transportation, storage and delivery. The insurance shall be obtained by the suppliers in an amount equal to 110% of the value of the goods from "warehouse to warehouse" (final destinations) on "all risks" basis including war risks and strikes.

12. Transportation

Where the Supplier is required under the Contract to transport the Goods within India defined as Project site, transport to such place of destination in India including insurance, as shall be specified in the Contract, shall be arranged by the Supplier, and the related cost shall be included in the contract Price.

13. Warranty

The Supplier warrants that the Goods supplied under this Contract are new, unused, of the most recent or current models and that they incorporate all recent improvements in design and materials unless provided otherwise in the Contract. The Supplier further warrants that all Goods supplied under this Contract shall have no defect arising from design, materials or workmanship or from any act or omission of the Supplier that may develop under normal use of the supplied Goods in the conditions prevailing in India.

This warranty shall remain valid for at least **36 months** (or as specified) after the Goods or any portion thereof as the case may be, have been delivered to and accepted at the final destination indicated in the Contract, unless specified otherwise.

The Purchaser shall promptly notify the Supplier in writing of any claims arising under this warranty.

Upon receipt of such notice, the Supplier shall with all reasonable speed, repair or replace the defective Goods or parts thereof, without any extra cost to the Purchaser.

If the Supplier, having been notified, fails to remedy the defect(s) within a reasonable period, the Purchaser may proceed to take such remedial action as may be necessary, at the Supplier's risk and expense and without prejudice to any other rights which the Purchaser may have against the Supplier under the Contract.

14. Payment

The payment shall be made **100% payment against Supply, Installation and Commissioning and submission of satisfactory PBG.**

The Supplier's request(s) for payment shall be made to the Purchaser in writing, accompanied by an invoice describing, as appropriate, the Goods delivered and the Services performed, and by documents, submitted pursuant to GCC Clause 10, and upon fulfilment of other obligations stipulated in the contract.

15. Prices

Prices charged by the Supplier for Goods delivered and Services performed under the Contract shall not vary from the prices quoted by the Supplier in his bid. The bidder must mention the applicable taxes/duty and exemptions thereon, if any, as per the Government of India norms. The Institute will provide requisite certificate, if any, required by the bidder as per the applicable Govt. of India norms.

16. Change Orders

The Purchaser may at any time, by written order given to the Supplier, make changes within the general scope of the Contract in any one or more of the following:

- (a) Drawings, designs, or specifications, where Goods to be furnished under the Contract are to be specifically manufactured for the Purchaser;
- (b) The method of shipping or packing;
- (c) The place of delivery; and/or
- (d) The services to be provided by the Supplier.

If any such change causes an increase or decrease in the cost of, or the time required for, the Supplier's performance of any provisions under the Contract, an equitable adjustment shall be made in the Contract Price or delivery schedule, or both, and the Contract shall accordingly be amended. Any claims by the Supplier for adjustment under this clause must be asserted within thirty (30) days from the date of the Supplier's receipt of the Purchaser's change order.

17. Contract Amendments

Subject to GCC Clause 16, no variation in or modification of the terms of the Contract shall be made except by written amendment signed by the parties.

18. Assignment

The Supplier shall not assign, in whole or in part, its obligations to perform under the Contract, except with the Purchaser's prior written consent.

19. Subcontracts

The Supplier shall notify the Purchaser in writing of all subcontracts awarded under this Contract if not already specified in the bid. Such notification, in his original bid or later, shall not relieve the Supplier from any liability or obligation under the Contract.

20. Delays in the Supplier's Performance

Delivery of the Goods and performance of the Services shall be made by the Supplier in accordance with the time schedule specified by the Purchaser as per GCC clause 10.

If at any time during performance of the Contract, the Supplier or its sub-contractor(s) should encounter conditions impeding timely delivery of the Goods and performance of Services, the Supplier shall promptly notify the Purchaser in writing of the fact of the delay, its likely duration and its cause(s). As soon as practicable after receipt of the Supplier's notice, the Purchaser shall evaluate the situation and may, at its discretion, extend the Supplier's time for performance with or without liquidated damages, in which case the extension shall be ratified by the parties by amendment of the Contract.

Except as provided under GCC Clause 23, a delay by the Supplier in the performance of its delivery obligations shall render the Supplier liable to the imposition of penalty pursuant to GCC Clause 21, unless an extension of time is agreed upon pursuant to GCC Clause 20.2 without the application of liquidated damages.

21. Penalty

Subject to GCC Clause 23, if the Supplier fails to deliver any or all of the Goods or to perform the Services within the period(s) specified in the Contract, the Purchaser shall, without prejudice to its other remedies under the Contract, deduct from the Contract Price, as penalty, a sum equivalent to 1% per week and the maximum deduction is 10% of the contract price of the delivered price of the delayed Goods or unperformed Services for each week or part thereof of delay until actual delivery or performance. Once the maximum is reached, the Purchaser may consider termination of the Contract pursuant to GCC Clause 22.

22. Termination for Default

The Purchaser may, without prejudice to any other remedy for breach of contract, by written notice of default sent to the Supplier, terminate the Contract in whole or part:

- (a) If the Supplier fails to deliver any or all of the Goods within the period(s) specified in the purchase order, or within any extension thereof granted by the Purchaser pursuant to GCC Clause 20; or
- (b) If the Supplier fails to perform any other obligation(s) under the Contract.
- (c) If the Supplier, in the judgment of the Purchaser has engaged in corrupt or fraudulent practices in competing for or in executing the Contract.

„For the purpose of this Clause:

“Corrupt practice” means the offering, giving, receiving or soliciting of any thing of value to influence the action of a public official in the procurement process or in contract execution.

“Fraudulent practice: a misrepresentation of facts in order to influence a procurement process or the execution of a contract to the detriment of the Borrower, and includes collusive practice among Bidders (prior to or after bid submission) designed to establish bid prices at artificial non-competitive levels and to deprive the Borrower of the benefits of free and open competition;”

In the event the Purchaser terminates the Contract in whole or in part, pursuant to GCC Clause 22.1, the Purchaser may procure, upon such terms and in such manner as it deems appropriate, Goods or Services similar to those undelivered, and the Supplier shall be liable to the Purchaser for any excess costs for such similar Goods or Services. However, the Supplier shall continue the performance of the Contract to the extent not terminated.

23. Force Majeure

Notwithstanding the provisions of GCC Clauses 20 & 21, the Supplier shall not be liable for imposition of liquidated damages or termination for default, if and to the extent that, its delay in performance or other failure to perform its obligations under the Contract is the result of an event of Force Majeure.

For purposes of this Clause, "Force Majeure" means an event beyond the control of the Supplier and not involving the Supplier's fault or negligence and not foreseeable. Such events may include, but are not limited to, acts of the Purchaser either in its sovereign or contractual capacity, wars or revolutions, fires, floods, epidemics, quarantine restrictions and freight embargoes.

If a Force Majeure situation arises, the Supplier shall promptly notify the Purchaser in writing of such conditions and the cause thereof. Unless otherwise directed by the Purchaser in writing, the Supplier shall continue to perform its obligations under the Contract as far as is reasonably practical, and shall seek all reasonable alternative means for performance not prevented by the Force Majeure event.

24. Termination for Insolvency

The Purchaser may at any time terminate the Contract by giving written notice to the Supplier, if the Supplier becomes bankrupt or otherwise insolvent. In this event, termination will be without

Compensation to the Supplier provided that such termination will not prejudice or affect any right of action or remedy, which has accrued or will accrue thereafter to the Purchaser.

25. Termination for Convenience

The Purchaser, by written notice sent to the Supplier, may terminate the Contract, in whole or in part, at any time for its convenience. The notice of termination shall specify that termination is for the Purchaser's convenience, the extent to which performance of the Supplier under the Contract is terminated, and the date upon which such termination becomes effective.

The Goods that are complete and ready for shipment within 30 days after the Supplier's receipt of notice of termination shall be accepted by the Purchaser at the Contract terms and prices.

26. Resolution of Disputes

The Purchaser and the supplier shall make every effort to resolve amicably by direct informal negotiation any disagreement or dispute arising between them under or in connection with the Contract.

If, after thirty (30) days from the commencement of such informal negotiations, the Purchaser and the Supplier have been unable to resolve amicably a Contract dispute, either party may require that the dispute be referred for resolution to the formal mechanisms as specified below. These mechanisms may include, but are not limited to, conciliation mediated by a third party, adjudication in an agreed national or international forum, and national or international arbitration.

In case of Dispute or difference arising between the Purchaser and a supplier relating to any matter arising out of or connected with this agreement, such disputes or difference shall be settled in accordance with the Arbitration and Conciliation Act, 1996 as amended from time to time.

27. Governing Language

The contract shall be written in English language. Subject to GCC Clause 28, English language version of the Contract shall govern its interpretation. All correspondence and other documents pertaining to the Contract which are exchanged by the parties shall be written in the same language.

28. Applicable Law

The contract shall be governed by the Law of Contract for the time being in force.

Irrespective of the place of delivery, the place of performance or place of payment under the contract, the contract shall be deemed to have been made at the place from which the acceptance of tender has been issued.

Jurisdiction of Courts: The courts of the place from where the acceptance of tender has been issued shall alone have jurisdiction to decide any dispute arising out of or in respect of this contract.

One month notice will be given by either party for termination of Contract during the tenure of Contract for breach of Clause or otherwise.

29. Taxes and Duties

Suppliers shall be entirely responsible for all taxes, duties, license fees, road permits, etc., incurred until delivery of the contracted Goods to the Purchaser.

30. Performance Security:

Successful bidder have to furnish 03% of the order value as a performance security in the shape of Fixed Deposit Receipt / Bank Guarantee in favour of the Registrar, Indian Institute of Technology (BHU) valid for a period of 60 days beyond the end of all warranty period / obligations (i.e. must valid to 38 months). Fixed Deposit Receipt / Bank Guarantee should be issued from a schedule bank in India.

31. Supplier Integrity

The Supplier is responsible for and obliged to conduct all contracted activities in accordance with the Contract using state of the art methods and economic principles and exercising all means available to achieve the performance specified in the contract.

The Institute Reserves The Right To:

14. Increase or decrease the quantity of the item(s) as per requirement subject to variation of maximum of 50% only, however, provided within the ceiling of the category in which the original order was placed i.e., if it is within 2.5 Lakh category than should not exceed the 2.5 lakh limit and so on.
15. Reject the quotation in absence of not furnishing the documentary evidence in respect of Trade Tax Registration (G.S.T), Income Tax and Trade Tax clearance certificates together with the performance of supplies in various branches/institutions.
16. Reject the quotation in the event of non-furnishing the authentic documentary evidence in respect of Testing reports / Performance report of the concerned Govt. Organization / Institutions about the products being manufactured and marketed. The performance test of the product can be conducted at Institute level also for which charge will have to be borne by the suppliers.
17. Reject the supplies already made, if not found up to the mark. Thorough checking may be adopted to test the correctness of the supply. In such an event further action may call to conform or discard the supply.
18. To reject any addition/alteration in respect of local dealerships intimated by the Principals after consideration of the case by the committee appointed by the Institute for the purpose.
19. Cancel this Tender at any point of time without assigning any reason thereof.
20. The Institute also reserves the right to reject the bid of any participated bidder
21. The Purchaser may, without prejudice to any other remedy for breach of contract, by written notice of default sent to the Supplier, terminate the Contract in whole or part:
 - (d) If the Supplier fails to deliver any or all of the Goods within the period(s) specified in the purchase order, or within any extension thereof granted by the Purchaser.
 - (e) If the Supplier fails to perform any other obligation(s) under the Contract.
 - (f) If the Supplier, in the judgment of the Purchaser has engaged in corrupt or fraudulent practices in competing for or in executing the Contract.
22. To reject any or all the offers without assigning any reasons thereof.
23. All disputes are subject to ***“Varanasi Jurisdiction”*** only.
24. The decisions of the Institute in all respect shall be final and binding on all.
25. The Institute reserves the right to ask the successful bidder to produce all the original documents submitted alongwith the bids for verification at any point of time. During the verification of the document, if it is found that the bidder has concealed/falsified/fabricated any information, the bid and/or purchase order will be cancelled and/or performance security will be forfeited and action including blacklisting will be taken against the bidder as per norms of the Institute.
26. Please ensure that your offer is complete in all respect as no further clarifications shall be sought from you and reaches us within the last date mentioned above. **The Institute shall not be responsible for any delay etc.**

Dr. Joysurya Basu

Principal Investigator

**Project No: R&D/SA/DST-
FIST/Met/Scm./20-21/01**

**Department of Metallurgical Engg,
IIT (BHU), Varanasi-221005**

NOTE: 1- While arranging the Tender Documents, check list should be placed on TOP.

SECTION 4 : SPECIAL CONDITIONS OF CONTRACT

1. Essential Pre Bid Criteria, if any

- i. Bidders should be the manufacturer (OEM) / authorized dealer. Currently valid Letter of Authorization from original equipment manufacturer (OEM) should be enclosed in case of authorized dealer participating in the Tender. The Letter of authorization shall remain valid during execution of supply and installation.
- ii. An undertaking from the OEM is required stating that they would facilitate the bidder on a regular basis with technology/product updates and extend all support for the warranty in confirmation with this bid for the quoted items. In case the OEM withdraws its authorization from bidder, the above service will be provide by the OEM.
- iii. Non-compliance of tender terms, non-uploading of required documents, lack of clarity of the specifications, contradiction between bidder specifications and supporting literature etc. may lead to rejection of the bid.
- iv. In the tender, either the Indian agent on behalf of the Principal/OEM or Principal/OEM itself can bid but both cannot bid simultaneously for the same item/product in the same tender.
- v. If an agent submits bid on behalf of the Principal/OEM, the same agent shall not submit a bid on behalf of another Principal/OEM in the same tender for the same item/product.
- vi. A notarized affidavit by the bidder that it has never been black-listed must be uploaded along with the technical Bid under cover 1, failing which the Bid shall be rejected. The original shall be submitted before the award of bid by the lowest evaluated successful bidder.
- vii. Certified Financial Statement of Bidder from a CA such as Balance Sheet and Profit & Loss account of last three financial years clearly indicating the annual turnover regarding the supply and installation of similar type of items. The annual financial turnover of bidder must not be less than 50 Lakh during Last 3 financial years.
- viii. The bidder must have executed at least one similar nature of supply and installation in any IITs/NITs/University/CFTIs during the last 3 years. Copies of Purchase Orders showing order value along with satisfactory installation certificate to be uploaded under cover 1. Similar Nature work means execution of supply, installation, testing & commissioning of PART A: Analytical Transmission Electron Microscope , Part B: Ion Beam Milling System , Part C: Dimple grinder with microscope

NOTE: THE BID OF THOSE BIDDERS WHO FAILS TO COMPLY THE ABOVE ESSENTIAL CRITERIA WILL NOT BE CONSIDERED FOR TECHNICAL EVALUATION.

2. Documents Comprising the Bid

The tender/Bid shall be submitted online in two part, viz., Technical Bid and Commercial Bid.

I. Technical Bid

The following documents are to be scanned and uploaded as part of the Technical Bid as per the tender document:

- (a) Scanned copy of Tender Forms (Techno Commercial Un-Priced Bid), Declaration, Bidder's Information Form, and Tender Acceptance Letter;
- (b) Scanned copy of proof for submission of Tender Document Fee/ Earnest Money Deposit/Exemption Certificate, if any etc.;
- (c) Scanned copy of written confirmation authorizing the signatory of the Bid to commit the Bidder;
- (d) Scanned copy of quoted product brochure
- (e) Scanned copy of completely filled Annexure III with supporting documents
- (f) Scanned copy of Technical Bid and essential Pre-bid Details, if any.
 - i. Scanned copy of documentary evidence establishing the Bidder's qualifications to

perform the contract if its bid is accepted and the Bidder's eligibility to bid;

ii. Scanned copy of documentary evidence, that the Goods and Related Services to be supplied by the Bidder are of eligible origin and conform to the Bidding Documents, and

(g) Scanned copy of Checklist, compliance of Essential pre-bid criteria and Technical Compliance Sheet (Annexure II) and any other document required as per the tender;

II. Commercial Bid

The commercial bid comprises of :

(i) Scanned copy of Tender Form (Price Bid)

(ii) Price bid in the form of **.xls format** and to be uploaded in .xls & signed .pdf format.

The Price bid format is provided as .xls format along with this Tender Document at <http://eprocure.gov.in/eprocure/app>. Bidders are advised to download this .xls format and quote their offer/rates in the prescribed column.

In addition to the above requirements, bids submitted by a Joint Venture, shall include a copy of the Joint Venture Agreement entered into by all members. Alternatively, a letter of intent to execute a Joint Venture Agreement in the event of a successful bid shall be signed by all members and submitted with the bid, together with a copy of the proposed Agreement, there to.

The Bidder shall furnish in the Tender Forms information on commissions and gratuities, if any, paid or to be paid to agents or any other party relating to this Bid.

3. Installation & Demonstration

The supplier is required to done the installation and demonstration of the equipment within one week of the arrival of materials at the IIT (BHU) site of installation, otherwise the penalty clause will be the same as per the supply of materials.

In case of any mishappening/damage to equipment and supplies during the carriage of supplies from the origin of equipment to the installation site, the supplier has to replace it with new equipment/supplies immediately at his own risk. Supplier will settle his claim with the insurance company as per his convenience. IIT (BHU) will not be liable to any type of losses in any form.

4. Application Specialist

The Tenderer should mention in the Techno-Commercial bid the availability and names of Application Specialist and Service Engineers in the nearest regional office.

5. Spares

The Supplier is required to provide state availability of spares for ten years, if required.

6. Training of Personnel

The supplier shall be required to undertake to provide the technical training to the personnel involved in the use of the equipment at the Institute premises, immediately after completing the installation of the equipment for a minimum period of one week at the supplier's cost.

7. User List

The bidder must provide the list of users where they have deployed similar nature of equipments in last 5 years in prescribed format of Annexure III.

8. Manuals/Documents

1 set of hard copy and 1 set of soft copy in English (preferred as following).

- i. Operating manual
- ii. Servicing & Maintenance manual
- iii. Spare parts list with source of supply and prices
- iv. Pre-installation requirements.

10. Services

Vendor must submit Factory Acceptance Test procedure supported with relevant printed literature and certificates.

11. The Tender document should also indicate what kind of service/maintenance is required for the system. Whether this service has to be carried out by a company engineer or it can be carried by trained service personnel within India. The frequency of visit and the charges should be mentioned.

12. The Tender should be enclosed with proper certifications like **Authorization Certificate** and **Proprietary Certificate** (in case of Proprietary items).

13. Pre-installation site preparation/inspection requirements to be indicated and specified along with the bid.

14. Bid should include FOR IIT(BHU), Varanasi prices. The Institute will provide requisite certificate, if any, required by the bidder as per the applicable Govt. of India norms.

15. The vendor to provide compliance statement with respect to each technical specification in the tender document duly supported by the manufacturer's literature. Any other claim will not be accepted and may lead to rejection of the bid.

16. Printed literature in support of compliance to the prescribed specifications is to be submitted.

17. Compliance report needs to be submitted as a part of the technical bid.

18. Exemption is allowed from payment of Tender Processing Fees as per Government of India norms against submission of currently valid certificate specifically for the item(s) proposed to be procured through this Tender.

IMPORTANT NOTE:

1. Non-compliance of tender terms, non-uploading of required documents, lack of clarity of the specifications, contradiction between bidder specifications and supporting literature etc. may lead to rejection of the bid.

2. In the tender, either the Indian agent on behalf of the Principal/OEM or Principal/OEM itself can bid but both cannot bid simultaneously for the same item/product in the same tender.

3. If an agent submits bid on behalf of the Principal/OEM, the same agent shall not submit a bid on behalf of another Principal/OEM in the same tender for the same item/product.

Note: All documents in support of above essential pre-bid criteria shall be scanned and uploaded under cover 1.

SECTION 5 : CHECKLIST FOR BID/TENDER SUBMISSION

(The following check-list must be filled in and submitted with the bid documents)

Sl. No.	Particulars : Techno Commercial Un-Priced Bid (Cover – 1)	Yes/No
1	Have you attached the techno commercial unpriced bid form duly filled in appropriately?	
2	Have you attached a copy of the last 3 years audited balance sheet of your firm (starting from the year 2018-19)	
3	Have you attached the details of the income tax clearance certificate, proof of manufacturing unit/ dealership letter/ general order suppliers and copy of GST registration certificate?	
4	Have you executed the similar nature of work in last 3 year in IITs/NITs/Govt. Office/PSU/University/Autonomous Body	
5	Have you attached the copies of relevant work orders from Govt. Depts. / PSUs and Central Autonomous Bodies in prescribed Format?	
6	Bid Security Declaration Form: Have you submitted Bid Security Declaration Form asked for.	
7	Have you submitted samples of all items indicated in the respective schedule of requirements at the address of tender inviting authority within due date.	
8	Have you enclosed the schedule of requirement indicating the make offered without indicating the pricing components along with the techno commercial unpriced bid?	
9	Have you submitted the bids both techno commercial unpriced and priced bid separately for each tender?	
10	Have you enclosed the statement of deviations from financial terms and conditions, if any?	
11	Have you submitted the Technical Compliance Sheet?	
12	Have you attached Manufacturer's Authorization certificate for this Tender?	
13	Have you attached the Declaration on the letter pad of Bidder?	
14	Have you attached the compliance of Pre-qualification criteria?	
15	Have you attached the signed Tender acceptance letter?	
Price Bid		
1	Have you signed and attached the priced bid form?	
2	Have you attached the schedule of requirements duly priced i.e BoQ?	

Compliance Sheet of Essential Pre Bid Criteria

Sl. No.	Essential Pre Bid Criteria	Compliance
1.	Bidders should be the manufacturer (OEM) / authorized dealer. Currently valid Letter of Authorization from original equipment manufacturer (OEM) should be enclosed in case of authorized dealer participating in the Tender. The Letter of authorization shall remain valid during execution of supply and installation.	
2.	An undertaking from the OEM is required stating that they would facilitate the bidder on a regular basis with technology/product updates and extend all support for the warranty in confirmation with this bid for the quoted items. In case the OEM withdraws its authorization from bidder, the above service will be provide by the OEM.	
3.	A notarized affidavit by the bidder that it has never been black-listed must be uploaded along with the technical Bid under cover 1, failing which the Bid shall be rejected. The original shall be submitted before the award of bid by the lowest evaluated successful bidder.	
4.	Certified Financial Statement of Bidder from a CA such as Balance Sheet and Profit & Loss account of last three financial years clearly indicating the annual turnover regarding the supply and installation of similar type of items. The annual financial turnover of bidder must not be less than 50 Lakh during Last 3 financial years.	
5.	The bidder must have executed at least one similar nature of supply and installation in any IITs/NITs/University/CFTIs during the last 3 years. Copies of Purchase Orders showing order value along with satisfactory installation certificate to be uploaded under cover 1. Similar Nature work means execution of supply, installation, testing & commissioning of PART A: Analytical Transmission Electron Microscope; Part B: Ion Beam Milling System; Part C: Dimple grinder with microscope	

SECTION 6

DECLARATION

(On the letter head of the firm submitting the bid)

1. I, Son /Daughter of Shri.....
----- Proprietor/ Partner/ CEO /MD/ Director/
Authorized Signatory of M/s. ----- am competent to sign
this declaration and execute this tender document.
2. I have carefully read and understood all the terms and conditions of the tender and hereby convey my acceptance of the same.
3. The information/ documents furnished along with the above application are true and authentic to the best of my knowledge and belief.
4. I/ we/ am are well aware of the fact that furnishing of any false information/ fabricated document would lead to rejection of my tender at any stage besides liabilities towards prosecution under appropriate law.
5. Each page of the tender document and papers submitted by my Company is authenticated, sealed and signed, and I take full responsibility for the entire documents submitted.
6. This is certified that our organization has been authorized (Copy attached) by the OEM to participate in Tender. We further certified that our organization meets all the conditions of eligibility criteria laid down in this tender document. Moreover, OEM has agreed to support on regular basis with technology / product updates and extend support for the warranty.
7. The prices quoted in the price bids are subsidized due to academic discount given to IIT (BHU), Varanasi.
8. We, further specifically certify that our organization has not been Black Listed/De Listed or put to any Holiday by any Institutional Agency/Govt. Department/Public Sector Undertaking in the last three years.

Signature of the Authorized Person

Date: -----

Full Name -----

Place: -----

Company Address with Seal

SECTION 7

TENDER FORM

(Techno commercial un-priced Bid)

(On the letter head of the firm submitting the bid)

Tender No.

To

Dr. Joysurya Basu

Principal Investigator

Project No: R&D/SA/DST-FIST/Met/Scm./20-21/01

Department of Metallurgical Engg, , IIT (BHU), Varanasi-221005

Dear Sir,

1. I/We have examined and have no reservations to the Bidding Documents, including Addenda issued in accordance with Instructions to Bidders;
2. I/We meet the eligibility requirements and have no conflict of interest ;
3. I/We have not been suspended nor declared ineligible in India;
4. I/We offer to supply in conformity with the Bidding Documents and in accordance with the Delivery Schedules specified in the Schedule of Requirements the following Goods: *[insert a brief description of the Goods and Related Services]*;
5. I/We offer to supply the items as listed in the schedule to this tender hereto/portion thereof as you may specify in the acceptance of Tender at the price given in the said Schedule and agree to hold this offer open for a period of days from the date of opening of the tender.
6. I/we shall be bound by a communication of acceptance issued by you.
7. I/We have understood the Instruction to bidders and Conditions of Contract in the form as enclosed with the invitation to the tender and have thoroughly examined the specifications quoted in the Schedule hereto and am/are fully aware of the nature of the goods required and my/our offer is to supply the goods strictly in accordance with the specifications and requirements.
8. **Bid Security Declaration Form** has been uploaded.
9. The following have been added to form part of this tender.
 - (i) Schedule of requirements, quoting the make only duly signed and stamped.(without indicating price)
 - (j) Income Tax clearance certificate.
 - (k) Copy of last audited balance sheet.
 - (l) Copy of Valid GST registration certificate.
 - (m) Copy of similar relevant major purchase orders executed during last Five years in IITs/NITs/Govt. Office/PSU/University/Autonomous Body.
 - (n) Proof of manufacturing Unit, dealership certificate/general order suppliers.
 - (o) Statement of deviations from financial terms & conditions, if any.
 - (p) Any other enclosure. (Please give details)
10. We undertake to execute all orders which have been placed to meet emergent requirements on priority basis.
11. Certified that the bidder is:
 - (d) A sole proprietorship firm and the person signing the bid document is the sole proprietor/constituted attorney of the sole proprietor,

Or

- (e) A partnership firm, and the person signing the bid document is a partner of the firm and he has authority to refer to arbitration disputes concerning the business of the partnership by virtue of the partnership agreement/by virtue of general power of attorney.

Or

- (f) A company and the person signing the document is the constituted attorney.

(NOTE: Delete whatever is not applicable. All corrections/deletions should invariable be duly attested by the person authorized to sign the bid document).

- 12. We do hereby undertake that, until a formal notification of award, this bid, together with your written acceptance thereof shall constitute a binding contract between us.
- 13. If our bid is accepted, we commit to obtain a performance security in accordance with the Bidding Documents;
- 14. We are not participating, as a Bidder or as a subcontractor, in more than one bid in this bidding process, other than alternative bids submitted;
- 15. We hereby certify that we have taken steps to ensure that no person acting for us or on our behalf will engage in any type of fraud and corruption

Name of the Bidder*

Name of the person duly authorized to sign the Bid on behalf of the Bidder**

Title of the person signing the Bid

Signature of the person named above

Date signed day of

* In the case of the Bid submitted by joint venture specify the name of the Joint Venture as Bidder

** Person signing the Bid shall have the power of attorney given by the Bidder to be attached with the Bid Schedules.

Yours faithfully,

(Signature of bidder)

Dated this day of _____

Address:

Telephone No. : _____

FAX _____

E-mail _____

Company seal

TENDER FORM

(Priced Bid)

(On the letter head of the firm submitting the bid document)

To,

Dr. Joysurya Basu

Principal Investigator

Project No: R&D/SA/DST-FIST/Met/Scm./20-21/01

Department of Metallurgical Engg, IIT (BHU), Varanasi-221005

Ref: Tender No.....Dated:

Sir,

Having examined the bidding documents and having submitted the techno commercial unpriced bid for the same, we, the undersigned, hereby submit the priced bid for supply of goods and services as per the schedule of requirements and in conformity with the said bidding documents.

1. We hereby offer to supply the Goods/Services at the prices and rates mentioned in the enclosed schedule of requirement.
2. We do hereby undertake that, in the event of acceptance of our bid, the supply of Goods/Services shall be made as stipulated in the schedule of requirement and that we shall perform all the incidental services.
3. The prices quoted are inclusive of all charges net FOR IIT(BHU) Varanasi and should be mentioned clearly. We enclose herewith the complete Financial Bid as required by you. This includes:
 - a. Price Schedule (Bill of Quantity-BOQ).
 - b. Statement of deviations from financial terms and conditions.
4. We agree to abide by our offer for a period of 180 days from the date fixed for opening of the bid documents and that we shall remain bound by a communication of acceptance within that time.
5. We have carefully read and understood the terms and conditions of the bid document and we do hereby undertake to supply as per these terms and conditions. The Financial Deviations are only those mentioned in the statement of deviations from financial terms and conditions.
6. We have paid, or will pay the following commissions, gratuities, or fees with respect to the bidding process or execution of the Contract: **[insert complete name of each Recipient, its full address, the reason for which each commission or gratuity was paid and the amount and currency of each such commission or gratuity]**

Name of Recipient	Address	Reason	Amount

(If none has been paid or is to be paid, indicate “none.”)

7. We understand that this bid, together with your written acceptance thereof included in your

notification of award, shall constitute a binding contract between us, until a formal contract is prepared and executed; and

8. We understand that you are not bound to accept the lowest evaluated bid or any other bid that you may receive.

Certified that the bidder is:

A sole proprietorship firm and the person signing the bid document is the sole proprietor/ constituted attorney of sole proprietor,

Or

A partnership firm, and the person signing the bid document is a partner of the firm and he has authority to refer to arbitration disputes concerning the business of the partnership by virtue of the partnership agreement/by virtue of general power of attorney,

Or

A company and the person signing the bid document is the constituted attorney.

(NOTE: Delete whatever is not applicable. All corrections/deletions should invariably be duly attested by the person authorized to sign the bid document.)

We do hereby undertake that, until a formal notification of award, this bid, together with your written acceptance thereof, shall constitute a binding contract between us.

Dated this day of _____

Signature of Bidder _____

Details of enclosures _____

Full Address: _____

Telephone No. _____

Mobile No. : _____

Fax No. : _____

E-mail: _____

Company Seal

BIDDER INFORMATION FORM

Date:
ADVT. No.:

1. Bidder's Name:
2. In case of JV, legal name of each member : <i>[insert legal name of each member in JV]</i>
3. Bidder's actual or intended country of registration:
4. Bidder's year of registration:
5. Bidder's Address in country of registration:
6. Bidder's Authorized Representative Information Name: Address: Telephone/Fax numbers: Email Address:
7. Attached are copies of original documents of <i>[check the box(es) of the attached original documents]</i> <ul style="list-style-type: none">• Articles of Incorporation (or equivalent documents of constitution or association), and/or documents of registration of the legal entity named above.• In case of JV, letter of intent to form JV or JV agreement.• In case of Government-owned enterprise or institution, documents establishing:<ul style="list-style-type: none">• Legal and financial autonomy• Operation under commercial law• Establishing that the Bidder is not dependent agency of the Purchaser
2. Included are the organizational chart, a list of Board of Directors, and the beneficial ownership.

TENDER ACCEPTANCE LETTER

(To be given on Company Letter Head)

Date:

Dr. Joysurya Basu

Principal Investigator

Project No: R&D/SA/DST-FIST/Met/Scm./20-21/01

Department of Metallurgical Engg,

IIT (BHU), Varanasi-221005

Sub: Acceptance of Terms & Conditions of Tender.

Tender Reference No. _____

Name of Tender/ Work: - _____

Dear Sir,

1. I/We have downloaded/ obtained the tender document(s) for the above mentioned „Tender/Work“ from the web site(s) namely:

as per your advertisement, given in the above mentioned website(s).

2. I/We hereby certify that I/We have read the entire terms and conditions of the tender documents from Page No. _____ to _____ (including all documents like section(s), schedules(s) etc.), which form part of the contract agreement and I/we shall abide hereby by the terms/conditions/ clauses contained therein.

3. The corrigendum(s) issued from time to time by your department/ organisation too have also been taken into consideration, while submitting this acceptance letter.

4. I/We hereby unconditionally accept the tender conditions of above mentioned tender document(s)/ corrigendum(s) in its totality/entirety.

5. In case any provisions of this tender are found violated, then your department/organisation shall without prejudice to any other right or remedy be at liberty to reject this tender/bid including.

Yours faithfully,

(Signature of the Bidder, with Official Seal)

FORMAT OF BANK GUARANTEE FORM

1. This guarantee should be furnished by a Nationalized Bank / scheduled Bank, authorized by RBI to issue a Bank Guarantee.
2. This bank guarantee should be furnished on stamp paper of Rs. 100/-
3. The stamp paper should have been purchased in the Name of the Bank executing the Guarantee.
4. **In the case of foreign bidder the B.G may be furnished by an international reputed bank acceptable to the PURCHASER countersigned by any Nationalized / Scheduled Bank in India authorized by Reserve Bank of India.**

DATE:

BANK GUARANTEE NO:

Ref.: _____

To

**Indian Institute of Technology
(Banaras Hindu University)
Varanasi-221005**

Dear Sirs,

In accordance with your „Invitation to Bid” under
your Tender No:

M/s: _____

_____ herein after called the Contractor/supplier,
with the following Directors on their Board of Directors / partners of the firm.

- | | |
|----------|----------|
| 1. _____ | 2. _____ |
| 3. _____ | 4. _____ |

Agrees for the contract/supplies:

As an irrevocable **Bank** **Guarantee** for an amount of
Rs. _____ (in words and figures) valid for
_____ days from _____ is required to be submitted by
the Contractor/Supplier which amount is liable to be forfeited by the purchaser in the event of 1) the
withdrawal or revision of the offer by the Bidder as a condition within the validity period. (2) non-
acceptance of the Letter of Intent / purchase order by the bidder when issued within the validity period.
(3) failure to furnish the valid contract performance guarantee by the bidder within one month from the
receipt of the purchase order and (4) on the happening of any contingencies mentioned in the bid
documents such as _____.

We, the _____ **Bank** at _____
having our Head office at _____ (Local address) **Guarantee**
and undertake to pay immediately on first demand by IIT (BHU) the amount
of _____ (in figure and
words) without any reservation., protest, demur and recourse. Any such demand made by the
Purchaser shall be conclusive and binding on the Bank irrespective of any dispute or difference raised by
the purchaser.

The guarantee shall be irrevocable and shall remain valid up to _____ (This
date should be 6 months after execution of the order). If any further extension of this guarantee is
required the same shall be extended to such required period (not exceeding one year) on receiving

instruction from M/s _____ on whose behalf
this guarantee is issued.

In witness whereof the Bank, through its authorized officer has set its hand and stamp on this
_____ day of _____ at
_____ witness _____.

WITNESS

(Signature).....

Name in (Block letters)

Designation

(Staff Code No.)

(Bank's common Seal)

Official address:

Attorney as per power of Attorney No.

Date:

FORMAT FOR PERFORMANCE BANK GUARANTEE (PBG)/ PERFORMANCE SECURITY

(To be typed on Non-judicial stamp paper of the value of Indian Rupees of One Hundred)

(TO BE ESTABLISHED THROUGH ANY OF THE NATIONALISED COMMERCIAL BANKS (WHETHER SITUATED AT VARANASI OR OUTSTATION) WITH A CLAUSE TO ENFORCE THE SAME ON THEIR LOCAL BRANCH AT VARANASI)

To,
The Registrar,
Indian Institute of Technology (BHU),
Varanasi-221005

LETTER OF GUARANTEE

WHEREAS Indian Institute of Technology (BHU), Varanasi (Buyer) has invited tender vide Tender No dated for purchase of.....
AND WHEREAS the said tender document requires that eligible successful bidder (seller) wishing to supply the equipment / machinery, etc. in response thereto shall establish an irrevocable Performance Bank Guarantee in favour of “ The Registrar, Indian Institute of Technology (BHU), Varanasi” in the form of Bank Guarantee for Rs **(3% of the contract value)** and the Performance Bank Guarantee shall remain valid for a period of 60 (sixty) days beyond the date of completion of all contractual obligations of the seller, including warranty obligations from the date of issue of Performance Bank Guarantee and the eligible successful bidder (the seller) shall submit the same within 30 (Thirty) days from the date of Award of Contract.

NOW THIS BANK HEREBY GUARANTEES that in the event of the said bidder (seller) fails to abide by any of the conditions referred to in tender document / Award of Contract / performance of the equipment / machinery, etc. this Bank shall pay to Indian Institute of Technology (BHU), Varanasi on demand and without protest or demur Rs (Rupees).

This Bank further agrees that the decision of Indian Institute of Technology (BHU), Varanasi (Buyer) as to whether the said bidder (Seller) has committed a breach of any of the conditions referred in tender document / Award of Contract shall be final and binding.

We,.....(name of the Bank & branch) hereby further agree that the Guarantee herein contained shall not be affected by any change in the constitution of the bidder (Seller) and/ or Indian Institute of Technology (BHU), Varanasi (Buyer). **Notwithstanding anything contained herein:**

1. Our liability under this Bank Guarantee shall not exceed Rs
(Indian Rupees only).
2. This Bank Guarantee shall be valid up to.....(date) and
3. We are liable to pay the guaranteed amount or any part thereof under this bank guarantee only and only if IIT (BHU), Varanasi serve upon us a written claim or demand on or before(date). This Bank further agrees that the claims if any, against this Bank Guarantee shall be enforceable at our branch office at..... situated at (Address of local branch).

Yours truly,
Signature and seal of the guarantor:
Name of Bank:
Address:
Date:

SECTION 8

Annexure-I

Schedule of requirement

Department of Metallurgical Engineering, Indian Institute of Technology (BHU), Varanasi is planning to establish a state-of-the-art analytical atomic resolution electron microscope facility under the DST-FIST sponsored project. Indian Institute of Technology (BHU), Varanasi invites online bids (Technical bid and Commercial Bid) from eligible and experienced OEM (Original Equipment Manufacturer) or OEM Authorized Dealer for Analytical Atomic Resolution Transmission Electron Microscope with (warranty as stated under the technical specification of this tender) on site comprehensive warranty as stated in the tender specification. The microscope should be able to do conventional diffraction contrast (BF/DF imaging), high resolution phase contrast (HRTEM), mass-thickness contrast imaging (HR-STEM) in conjunction with different spectroscopy e. g. XEDS/EELS along with different types of diffraction such as SAD, CBED, LACBED etc. **The tender has got three parts namely Part A, Part B and Part C. Every part will be evaluated separately for technical and commercial evaluation. Technical and financial bids for every part should be submitted separately. Additional/optional accessories should be indicated separately (NOT in BOQ) along with their price bid in pdf format but the price will not be considered for deciding L1.**

TECHNICAL SPECIFICATION

PART A: Analytical Transmission Electron Microscope

S. No.	Parameters	Desired Specifications
1.	Item Name/Quantity	Analytical High Resolution Transmission Electron Microscope, 1 No.
2.	Accelerating Voltage	200 kV/300 kV-user changeable either in steps or continuously without intervention of any service engineer. The condenser should be aligned at least for three voltages as specified by the user at no extra cost. The voltages are 120 kV, 160 kV and 200 kV for a 200 kV microscope or 120 kV, 200 kV and 300 kV for a 300 kV microscope. The lens data should be provided by the OEM to the user for the three above mentioned voltages. Minimum step size should be ≤ 50 V. HT variation should be quick and should be possible by the user at the site of the installation.
3.	Electron Source	Cold Field Emission Gun with energy spread ≤ 0.3 eV or better. The source should be compatible with all the designed accelerating voltages as mentioned in point 2 of the tender. The warranty period of the electron source should be minimum five years. During the warranty period the replacement of FEG source is the responsibility of the supplier within the time limit as specified in the warranty section of the tender. At least three such installations in the country should be mentioned along with their performance.
4.	Resolution and spot size	Point to point resolution in TEM mode should be ≤ 0.2 nm or better, in the STEM mode the point to point resolution should be ≤ 0.15 nm or better. The point to point resolution and information limit in TEM and in STEM mode under three specific accelerating voltages with and without probe correction should be represented in tabular form with all resolution value expressed in nanometer units. Failure to comply with this requirement may lead to rejection of the bid. The quoted resolution should be guaranteed at the customer site. The quoted configuration should have all components in place such as monochromator or probe corrector completely activated. It should also be mentioned in the tabular representation of the resolution.
5.	Magnification	i) TEM Magnification: Range 500x to 1.0 Mx or higher ii) STEM Magnification: Range 500x to 150 Mx or higher
6.	Operation Modes	The TEM and the STEM should be fully digital microprocessor controlled with following modes. Hardware and software required for all the following imaging and diffraction modes should be in-

		built and activated. BF, DF, HRTEM, STEM-BF, STEM-DF, HAADF (segmented detector), ABF, ADF, SAED, CBED, LACBED, NBD, STEM-EDS, STEM-EELS
7.	Permissible Aberration	i) Spherical aberration ≤ 1.2 mm or better ii) Chromatic aberration ≤ 1.2 mm or better
8.	Cooling System	Close circuit automatic temperature and flow rate controlled water cooled chillers and air compressors should be supplied with the microscope at no extra cost for smooth operation.
9.	Lens System	System consisting of condenser lens, objective lens, diffraction, intermediate and projection lens. Condenser Lens should have optimum thermal stability and image drift. It should be possible to independently control the beam intensity and convergence angle. Objective Lens: The objective lens system should allow different types of holders including large specimen tilt for tomographic experiments. It should allow the specimen to be constant at the eucentric position at different operating modes even while spectral mapping. Objective lens should have wide gap pole piece to accommodate different types of special holders. It should have activated Lorentz lens for field free imaging of magnetic samples. Rotational calibration of the lenses should be done at the site of installation by company approved service engineers and it should be provided to the users. The standard samples for different calibration should be provided to the user at no extra cost.
10.	Vacuum System	Microscope should have oil free vacuum system. FEG vacuum should be $\leq 10^{-9}$ Pa and TEM column vacuum should be $\leq 10^{-7}$ Pa. The vacuum system should have fail-safe mechanism with suitable electronics interlock. Software based continuous monitoring and display of pressure should be there.
11.	Specimen chamber	Goniometer maximum tilt should be ± 70 (± 1.0 mm) degrees or higher (maximum goniometer tilt under the provided objective lens assembly should be spelt out); X movement range – 2 mm in total or more; Y movement range – 2 mm in total or more; Z movement range – 0.20 mm in total or more; STEM tomography should be automated with dynamic focusing capability; Specimen grid size 3 mm; Microscope should have a fully eucentric goniometer with all 5 axis motorized; TEM stage should be stable with maximum drift 0.5 nm/min or better; Facility for recording specific specimen translation position as reference point in memory; Minimum step of ≤ 0.06 nm for sample should be provided.
12.	STEM detector	STEM system should have bright field (BF), Annular Bright Field (ABF), dark field (DF)/Annular Dark Field (ADF) and high-angle annular dark field (HAADF) detectors all in activated condition with required hardware and software. Should have an ability to acquire BF/ABF, ADF, LAADF, HAADF and back scattered images simultaneously. Should be multi segmented with at least 8 segments or more.
13.	Recording System	1. Bottom Mounted, retractable, EELS compatible high resolution CMOS camera of minimum 4k*4k pixel @ 25 fps with full resolution of 4k*4k 2. Camera speed should be 25fps with full resolution of 4k*4k. sensor active area should be ≥ 3600 mm ² with 15micron pixel size having DQE of greater than or equal to 10% at $\frac{1}{2}$ Nq. at 200kV. Conversion efficiency greater than 30 counts per primary electron or more. 3. Camera should be usable at 80-200/300 kV HT range 4. User friendly software for astigmatism correction at high

		<p>magnification for HRTEM study. The output images should be compatible with commercial image analysis software with annotated scale bar, magnification etc. Facility for linear measurement for diffraction pattern analysis.</p> <p>5. The software should include online (real time drift correction at 4k x 4k, and Live FFT for astigmatism correction) and offline data processing features such as FFT and full support for real space (image mode) and reciprocal space (diffraction mode) calibrations. Separate computing device with display unit for capture, processing and display with latest software running on 64 bit.</p> <p>6. The camera should be supported by a separate computer of appropriate capacity, so that live video image acquisition and storage in hard-disk is possible.</p> <p>7. Additional computer with suitable capacity (Core i7 processor, 64 GB RAM, graphics card, 10 TB hard Disk) loaded with the software should be provided for offline data analysis and storage.</p>
14.	Window less EDS Detector	<p>Minimum two air-cooled window less Silicon Drift Detector EDS of active area $\geq 100 \text{ mm}^2$ using at least one EDS, solid angle should be $\geq 0.90 \text{ srad}$; Energy Resolution at Mn-Kα should be at least 135 eV at 100,000 spectra/s or better; Capability to detect elements with atomic number >5 (i.e. from B onwards); Suitable for quantification of elements; Capability of auto-protection in case of vacuum loss or high electron flux.</p> <p>The EDS should be capable of single point analysis, multipoint analysis, selective element mapping, line scan, selected area analysis, qualitative and quantitative analysis (with ZAF correction).</p> <p>The EDS software should have features like peak auto identification routine, spectral match analysis, automatic background subtraction, spectrum processing using filters, least square fitting and peak de-convolution. Pile up correction and background noise reduction, simultaneous imaging and analysis should be possible. The EDS should be operable through the same GUI of the imaging system.</p> <p>The calibration standards for EDS should be provided. The supplier should arrange for seamless interfacing, software, installation and commission for EDS.</p>
15.	Anti-Contamination Device	<p>Liquid nitrogen based anti-contamination device to suppress specimen contamination should be provided. At least one spare dewar should be provided at no extra cost.</p>
16.	Sample holders	<p>Low-background Double-tilt Holder- 1 No.;</p> <p>Single-tilt Holder - 1 No.;</p> <p>Double TILT Holder: 1 No.</p> <p>Multiple specimen holder: 1 No.</p> <p>Furnace based double tilt heating holder (Maximum Temperature 1000 °C): 1 No.</p> <p>Tomography holder: 1 No.</p>
17.	Advanced Plasma Cleaner	<p>Advanced plasma cleaner should be provided with the microscope for cleaning of samples with minimal damage. It should be compatible with Indian power supply specification. System should have low energy glow discharge ion source to produce hydrogen and oxygen radicals. Ports should be available to fit all kinds of TEM side entry holders and SEM holders.</p> <p>The vacuum should be oil free. The cleaning chamber should have viewing ports and it should be computer controlled. The system should support minimum of three gases e. g. argon, hydrogen and oxygen. The cleaner should be capable of cleaning all types of samples along with holey carbon grids. Separate holders should be provided for cleaning holey carbon grids. Data supporting this should be provided along with this offer.</p>

17A	Dry Pumping Station	Adequate number of ports should be made available to store side entry TEM holders in vacuum. Required adaptors should also be provided. All requirements for the instrument to be operable should be provided.
18.	User Interface	Fully computer-controlled system with window/Mac based software for operating the Microscope along with keyboard, mouse. Manual control panel using knobs, sample movement by track ball or joystick Control Panel and Joystick-Control panel including multifunction; keys/knobs for control and adjustment of TEM parameters (focus, magnification etc.) and manual joystick control for stage in X,Y,Z tilt and rotation directions
19.	Work Station and Software	Latest desktop system with sufficient USB ports and windows/Mac compatible operating system to operate the microscope and all attachments and 24 inch or higher HD LED monitor. Licensed software should be provided by the company. All software used to operate the instrument, acquire and process the data should be licensed and should be factory preloaded. Remote license should be provided to monitor and facilitate applicable remote servicing online. Complete software for image analysis, topography, morphology, dynamic picture recording, and image manipulation for separation of different images, super posing and subtraction. Tomography softwares for data collection and 3D reconstruction should be provided. Image file in suitable format with all information embedded in it and it should be convertible to JPEG, TIFF & BMP formats. Backup software must be provided on optical media. Any further version of the software and updates must be provided free of cost during the warranty period. Additional one windows and one mac computer with latest specifications, preloaded with the appropriate softwares and latest version of Adobe photoshop should be provided for offline data analysis.
20.	Manual	One set of instruction manual and service manual (both hard and soft copy in English) should be supplied with the equipment.
21.	Pre-Installation requirements	Complete technical details of pre-installation requirements should be furnished along with the technical bid to ensure quoted resolution. IIT (BHU), Varanasi will only provide the installation room, air-conditioning units and required electrical outlets and water connections. Vendors must conduct the site survey before installation at no additional cost. Vendor should provide SF ₆ , N ₂ or any other gas that might be needed for complete installation and smooth functioning of the microscope.
22.	Installation	Installation, complete interfacing of the system with its subsystems, and commissioning is to be carried out by the vendor's factory-trained engineers, followed by a demonstration of the system's performance to the user's complete satisfaction
23.	Training	The manufacturer/supplier of HRTEM should provide seven days onsite training initially during installation followed by regular follow up training every six months during the period of extended warranty on mutually convenient dates for hardware, software and application to the laboratory personnel in the installation, operation and maintenance of the instruments. The supplier or manufacturer should also provide dedicated five days applications training during the installation.
24.	Warranty	System should be covered for comprehensive warranty for 5 years from the manufacturer including FE gun maintaining the specified resolutions at the level same as during the time of installation. All parts including spares should be covered under the warranty and this fact should be clearly and explicitly specified in the bid

		document. The comprehensive Warranty should cover: 1. All parts including accessories, spares, and labor on site including shipment at the site of installation. 2. Free maintenance and service on site or at factory with no cost, and 3. Regular up-gradation of softwares till the warranty is not over. 4. Warranty period should start from the date of handover of the machine. Delay in service request of more than 120 hours would be added up to the warranty period. This should be clearly mentioned in the technical bid.
25.	Accessories	Chiller/compressor/UPS with Battery pack and other accessories as required should be included in the offer and should be manufactured by the vendor or internationally reputed manufacturer. Chiller, compressor and the UPS should also be covered under the warranty.
26.	Power supply	Should meet Indian Power standards preferably without use of external converters
27.	Support and service	1. The manufacturer/supplier should have company trained and authorized engineer to address on-site service request within 48 hours. Any delay beyond 120 hours whether due to unavailability of manpower or spares or both would get added to the warranty period. 2. The manufacturer should have provision to supply repair parts in foreign currency through direct order from IIT (BHU), Varanasi after the expiry of the warranty period. 3. The repair issues must be attended to within 2 business days of reporting the issue. In case the parts are required to be imported for repairs, the same should be made available within 2 weeks from the date of reporting of the issue. Any extension in this time will need to be compensated by the manufacturer by extending the comprehensive warranty by the excess period taken (i.e period beyond 2 weeks) in completing the repairs. 4. An application engineer and an errand person should be permanently stationed for 5 years at the site of installation at the cost of the company and both of them should be appointed with the consent of the customer.
28.	Compliance Statement	The supplier must submit a table indicating the compliance of the features of the model of the equipment being quoted with those given in the indent. Features not matching – must be clearly indicated. Additional features and features in the quoted equipment which are better than those in the indent – may be clearly explained. The supplier must submit technical brochures and proper application notes adequately explaining and confirming the availability of the features in the model of the equipment being quoted.
29.	Required Documents along with technical specifications	The supplier must provide a comprehensive list of users of similar system in India and abroad. They should also submit the name(s) of the service engineer(s) employed by them who is/are competent in maintenance and servicing the equipment along with their locations in India.
30.	Price	DDP Department of Metallurgical Engineering, IIT (BHU) should be quoted. The insurance for the whole system is for the factory warehouse to IIT BHU.
31.	Delivery Time	Delivery must be completed within nine months from the date of the order being placed.
32.	Additional Terms	(32a) Compliance statement: With soft copy - point wise according to our document. (32b) User List: Provide user list with contact (address and Phone anywhere in India or abroad) details where the quoted model and/or similar systems have been installed in last 10

		years. (32c) Original documents supporting the specifications should be provided.
33.	Technical expertise criteria	As the system is likely to be heavily used by multiple users across the country, it is desirable that the supplier has installed at least 10 or more, fully-functional, equivalent set-up in India and several (>40) equivalent systems across the world. It is essential to enclose the information related to installation in India and worldwide of similar setup along with feedback and performance report from at least 5 users in India and 10 different users worldwide.
34.	Installation	The entire process of installation, interfacing of the main system with its subsystems, and commissioning should be carried out by well-trained and technically competent engineers from the supplier. After installation, a complete demonstration of all the features of the HRTEM set-up should be included using the samples provided by the end-user, and the demonstration should meet the expectation of the end-users with complete satisfaction.
35.	User application training	The supplier should arrange for a basic operational training to minimum 5 users after installation and hand over A first phase onsite application training should be arranged by the supplier by an Application expert. A second phase advanced application training should be arranged on-site by the supplier after 6 months with a mutually agreed dates.
Optional Items (Should be quoted separately)		
1.	Probe Corrector	Probe corrector to be provided with STEM resolution of 0.080 nm with or without monochromator. In case monochromator is required to achieve the resolution, it should be included in the quote. Cs Probe corrector should be capable of higher order aberrations correction including the 5th order correction. Control of the corrector should be embedded in the TEM software (including routines for aligning the corrector).
2.	EELS System	A bottom mounted post column EELS for electron energy loss spectroscopy work operating on a separate computer should be provided. The operating voltage range for the EELS should be up to the maximum operating voltage of the microscope, its energy loss range should be upto 3000 eV with 8000 sps spectral rate, ultrafast electrostatic shutter. It should have hardware and software to acquire two spectra with different energy offset and exposure. Real time ZLP stabilization. Live STEM-EELS mapping. A single and high-end suitable server type computing system should be provided for smooth operation and data recording. A suitable system with all loaded softwares should be provided for offline data analysis.

Part B: Ion Beam Milling System

The ion-beam thinning equipment should be a capable of preparing transmission electron microscopy specimens (3 mm diameter) of both conducting and non-conducting samples, such as Silicon Carbide, Silicon, ceramics, multi-phase metals and composites etc. It should not induce damage in the specimen. Also, it should result in large electron transparent regions for viewing in a TEM; both conventional and high resolution TEM modes. The construction and operation of the equipment should be user-friendly.

The technical specifications of the equipment are given below:

1.	Item Name/Quantity	Ion beam milling system, Quantity: 1
2.	Ion-guns	Two ion guns each with independently adjustable gas control utilizing mass flow controllers to permit either rapid milling or slow precise ion polishing. Ion beam energy shall be continuously adjustable from 100eV to 8keV or more.

		<p>The alignment of the ion beams should be user friendly with either a fluorescent screen or a suitable mechanism. Ion beam current and operating voltage should be measurable independently.</p> <p>Ion gun should produce narrow ion beam width at the sample. Typical beam diameter and ion beam currents from each gun should be provided independently typically at 5 keV.</p> <p>The milling angle shall be continuously variable from +10 Deg to -10 Deg and fully adjustable during operation. It should be clearly mentioned whether it is motorized or not.</p> <p>The ion guns shall have no consumable parts or very long life time. Typically, greater than 30,000 hours of continuous operation.</p> <p>The current range should be variable from 0 to 100 micro Amps.</p> <p>The current should be measurable for each gun independently and measured at the gun.</p> <p>Special Operational Mode for preparing cross sectional samples for TEM Analysis should be offered as standard.</p> <p>Ion Gun Energies for both the ion gun should be independently controlled.</p>
2.	Stage and Specimen Holders	<p>A specimen exchange mechanism shall be incorporated in the system to permit loading or unloading of samples without venting the work chamber to atmosphere. Specimen stage should allow rapid transfer of specimens (~1-2 minutes).</p> <p>The Specimen stage should have provision for the rotation of the specimens during milling. Rotational speed shall be continuously variable from 0 – 5 rpm or more.</p> <p>Provision of a mechanism for Sector milling (i.e, milling the specimens from only one side or anyside) over a range of 45 to 90 degrees should be available. The mechanism should permit the preparation of cross-sectional TEM specimens of multilayer's without significant milling of the glue-line (or bonding layer used to prepare cross-sections).</p> <p>The Stage shall incorporate X, Y motion to assist the user in positioning the specified mill location at the center of the beam polishing area. The minimum stage travel shall be~ +/-0.5 mm (i.e. ~ 1 mm in total) in X and Y directions. Please note that it should be possible to load the sample in ion milling tool for X & Y Alignment while the sample is mounted on the specimen post.</p> <p>The specimen holder should be able to hold 3 mm diameter TEM specimens by either clamping mechanism or sticking mechanism. For loading unloading of the sample in specimen holders, suitable user-friendly mechanism should be provided. Also they can be rapidly and easily transferred in to the ion beam thinning equipment.</p> <p>Specimen heating: A glue-type specimen holder shall be supplied to optimize heat dissipation.</p> <p>The holder should have long life time and durability. They should be compatible for cooling the TEM specimens with liquid nitrogen during the ion milling</p> <p>Cold stage shall be offered as standard as per the following specifications:</p> <p>Dewar and conductor rod should share the main vacuum system.</p>

		<p>6-8 hour Dewar capacity</p> <p>Sample temperature: -The specimen can be kept in user defined temperature in the range of -150 °C to 30 °C or better, during milling. A mechanism to measure the relevant temperature should be provided. The cooling/warm-up of the specimen's should be done rapidly (~30-45 minutes) and in-built mechanism for this operation should be provided.</p> <p>Electronic temperature regulation: minimum range (-180°C to +100°C)</p> <p>Through transmission illumination of sample</p> <p>Built in Dewar heater is essential.</p>
3.	Specimen Viewing	<p>In-situ viewing: Any time without shutting down the ion guns or raising the sample into the airlock.</p> <p>Shutter: An automatic shutter shall be incorporated to reduce window contamination when not viewing the specimen.</p> <p>Sample illumination: Reflection and through transmission with the intensity set via the Touch Screen.</p> <p>A Stereo Optical Microscope 40X, 80X magnification should be supplied along with the ion milling equipment as standard.</p>
4.	Milling Termination	Milling termination by elapsed timer or optional light operated Auto-Terminator.
5.	User Interface	<p>A color touch-screen graphical user interface (GUI) should be supplied as standard. The GUI must be located on the front panel of the system for easy access and viewing. All system functions (gun settings, gas flow controls, stage movements, etc.) shall be controlled through this screen.</p> <p>Remote access to the system must be available through a network connection. The communication protocols will be used for monitoring the system's status, starting, pausing, and/or stopping the milling process.</p>
6.	Vacuum System and vacuum reading	<p>The vacuum system shall be totally self-contained within the enclosure.</p> <p>A totally oil-free vacuum system, pumping with turbo pump and oil free backing pump</p> <p>Work chamber base pressure: ~1E -6 Torr</p> <p>Operating pressure: ~ 1E -5 Torr.</p> <p>Suitable gauges to monitor the vacuum levels in main chamber and baking pump.</p> <p>Vacuum gauge should be present in the chamber area to read the vacuum in the specimen preparation area</p> <p>Sample exchange through air lock</p>
7.	Power	230 V, 50 Hz, single phase
8.	Cooling	The system shall be air cooled only, no water cooling should be required.
9.	Documentation	The detailed user instruction manual, operation/instruction manual, trouble shooting and maintenance manual and wiring diagrams in English should be supplied free of cost along the system. A list of installation of similar equipment in the country and their current performance report should be submitted along with the bid.
10.	a) Installation/	a) The equipment should be installed in the laboratory without

	Commissioning b) Warranty	additional cost. Also, two scientists should be trained in the laboratory. b) 36 months warranty from the date of acceptance of the equipment. c) Item should be quoted with DDP, Department of Metallurgical Engineering, IIT(BHU), Varanasi.
11.	Spare/ consumable	Following consumables should be supplied with the equipment as a part of standard package – Glue Type Sample Holder – Qty 1 Clamp Type Sample Holder – Qty 3 Specimen Post Copper Moly disulfide lubricant, 1gm – Qty 1 Quad- seal #111, Cold stage set of 2 – Qty 1 Cold Stage Window (pkg. of 10) – Qty 1 Comprehensive Service Kit

Part C

1.	Item name/quantity	Dimple grinder with microscope, Quantity: 1
2.	Power supply	230 V, 50 Hz power supply typically compatible with Indian power system
3.	Sample size	Suitable for 3mm diameter sample
4.	Dimpling process specs	Dimpling depth down to 10 microns or less. Automatic termination of the process. Digital Micrometer & Analog Micrometer to indicate depth in Dimple Grinder is essential. Magnetic base and platen should be provided for sample assembly.
5.	Sample monitoring during grinding	A microscope for alignment and monitoring of the sample essential.
	Consumables/spare parts	Phosphor bronze (PB), spherical, 2mm wide set of 4 - Qty 1 set. Stainless steel (SS), spherical, 2mm wide set of 4 – Qty 1 set. Polishing Wheel 15mm Ø (Standard) set of 4 - Qty 1 set Felt Polishing Rings (15mm Ø) set of 15 – Qty 2 set. Diamond Polishing Compound (2- 4um), 5gm – Qty 2 CBN 0- 2um Polishing Compound, 5g Syringe – Qty 2 CBN 4- 6um Polishing Compound, 5g Syringe – Qty 2 Alumina Suspension 0.05um, 2 oz. – Qty 2
6.	a) Installation & commissioning b) Warranty	The equipment should be installed in the laboratory without additional cost. Start-up assistance and training should be included for two scientists in the laboratory. 36 months warranty from the date of acceptance of the equipment. A list of similar installations in the country along with their performance report should be submitted along with the bid.
7.	Documentation	Operating and maintenance manual, wiring diagrams, spare part list as applicable
8.	Disc Punch	Suitable for 3mm disc punching with ease of removal

		of the punched disc and it should be able to punch ~150 micron thick sample.
9.	Specimen hot plate	Temperature controllable specimen hot plate for mounting sample should be quoted. Sufficient quantity of mounting wax should be provided. The amount of mounting wax provided with the hot plate should be quoted.
10.	Shipment	The items should be quoted with DDP Dept. of Metallurgical Engineering, IIT(BHU), Varanasi.

Other Terms and Conditions:

1. All equipment must be compatible with Indian electrical standards and codes. Engineering documentation on the physical sizes and weights of all major and minor components must be submitted.
2. GST 5% benefits will be provided by the Institute.
3. Tender Specific Manufacturer Authorization Form from OEM Required.
4. The Institute reserves the right of accepting or rejecting any/all quotations without assigning any reason thereof.
5. All prices should be DDP Dept. of Metallurgical Engineering, Indian Institute of Technology (BHU), Varanasi
6. Installation by Factory Trained Service Engineer is mandatory.

Dr. Joysurya Basu

Principal Investigator

Project Code: R&D/SA/DST-FIST/Met./Scm./20-21/01
Department of Metallurgical Engineering, IIT (BHU),
Varanasi-221005, U.P., India

TECHNICAL COMPLIANCE STATEMENT

(To be submitted by bidder duly filled)

PART A: Analytical Transmission Electron Microscope

Part A.3			
S. No.	Parameters	Desired Specifications	Yes/No
1.	Item Name/Quantity	Analytical High Resolution Transmission Electron Microscope, 1 No.	
2.	Accelerating Voltage	200 kV/300 kV-user changeable either in steps or continuously without intervention of any service engineer. The condenser should be aligned at least for three voltages as specified by the user at no extra cost. The voltages are 120 kV, 160 kV and 200 kV for a 200 kV microscope or 120 kV, 200 kV and 300 kV for a 300 kV microscope. The lens data should be provided by the OEM to the user for the three above mentioned voltages. Minimum step size should be ≤ 50 V. HT variation should be quick and should be possible by the user at the site of the installation.	
3.	Electron Source	Cold Field Emission Gun with energy spread ≤ 0.3 eV or better. The source should be compatible with all the designed accelerating voltages as mentioned in point 2 of the tender. The warranty period of the electron source should be minimum five years. During the warranty period the replacement of FEG source is the responsibility of the supplier within the time limit as specified in the warranty section of the tender. At least three such installations in the country should be mentioned along with their performance.	
4.	Resolution and spot size	Point to point resolution in TEM mode should be ≤ 0.2 nm or better, in the STEM mode the point to point resolution should be ≤ 0.15 nm or better. The point to point resolution and information limit in TEM and in STEM mode under three specific accelerating voltages with and without probe correction should be represented in tabular form with all resolution value expressed in nanometer units. Failure to comply with this requirement may lead to rejection of the bid. The quoted resolution should be guaranteed at the customer site. The quoted configuration should have all components in place such as monochromator or probe corrector completely activated. It should also be mentioned in the tabular representation of the resolution.	
5.	Magnification	iii) TEM Magnification: Range 500x to 1.0 Mx or higher iv) STEM Magnification: Range 500x to 150 Mx or higher	
6.	Operation Modes	The TEM and the STEM should be fully digital microprocessor controlled with following modes. Hardware and software required for all the following imaging and diffraction modes should be in-built and activated. BF, DF, HRTEM, STEM-BF, STEM-DF, HAADF (segmented detector), ABF, ADF, SAED, CBED, LACBED, NBD, STEM-EDS, STEM-EELS	

7.	Permissible Aberration	iii) Spherical aberration ≤ 1.2 mm or better iv) Chromatic aberration ≤ 1.2 mm or better	
8.	Cooling System	Close circuit automatic temperature and flow rate controlled water cooled chillers and air compressors should be supplied with the microscope at no extra cost for smooth operation.	
9.	Lens System	System consisting of condenser lens, objective lens, diffraction, intermediate and projection lens. Condenser Lens should have optimum thermal stability and image drift. It should be possible to independently control the beam intensity and convergence angle. Objective Lens: The objective lens system should allow different types of holders including large specimen tilt for tomographic experiments. It should allow the specimen to be constant at the eucentric position at different operating modes even while spectral mapping. Objective lens should have wide gap pole piece to accommodate different types of special holders. It should have activated Lorentz lens for field free imaging of magnetic samples. Rotational calibration of the lenses should be done at the site of installation by company approved service engineers and it should be provided to the users. The standard samples for different calibration should be provided to the user at no extra cost.	
10.	Vacuum System	Microscope should have oil free vacuum system. FEG vacuum should be $\leq 10^{-9}$ Pa and TEM column vacuum should be $\leq 10^{-7}$ Pa. The vacuum system should have fail-safe mechanism with suitable electronics interlock. Software based continuous monitoring and display of pressure should be there.	
11.	Specimen chamber	Goniometer maximum tilt should be ± 70 (± 1.0 mm) degrees or higher (maximum goniometer tilt under the provided objective lens assembly should be spelt out); X movement range – 2 mm in total or more; Y movement range – 2 mm in total or more; Z movement range – 0.20 mm in total or more; STEM tomography should be automated with dynamic focusing capability; Specimen grid size 3 mm; Microscope should have a fully eucentric goniometer with all 5 axis motorized; TEM stage should be stable with maximum drift 0.5 nm/min or better; Facility for recording specific specimen translation position as reference point in memory; Minimum step of ≤ 0.06 nm for sample should be provided.	
12.	STEM detector	STEM system should have bright field (BF), Annular Bright Field (ABF), dark field (DF)/Annular Dark Field (ADF) and high-angle annular dark field (HAADF) detectors all in activated condition with required hardware and software. Should have an ability to acquire BF/ABF, ADF, LAADF, HAADF and back scattered images simultaneously. Should be multi segmented with at least 8 segments or more.	

13.	Recording System	<p>1. Bottom Mounted, retractable, EELS compatible high resolution CMOS camera of minimum 4k*4k pixel @ 25 fps with full resolution of 4k*4k</p> <p>2. Camera speed should be 25fps with full resolution of 4k*4k. sensor active area should be $\geq 3600 \text{ mm}^2$ with 15micron pixel size having DQE of greater than or equal to 10% at $\frac{1}{2} \text{ Nq.}$ at 200kV. Conversion efficiency greater than 30 counts per primary electron or more.</p> <p>3. Camera should be usable at 80-200/300 kV HT range</p> <p>4. User friendly software for astigmatism correction at high magnification for HRTEM study. The output images should be compatible with commercial image analysis software with annotated scale bar, magnification etc. Facility for linear measurement for diffraction pattern analysis.</p> <p>5. The software should include online (real time drift correction at 4k x 4k, and Live FFT for astigmatism correction) and offline data processing features such as FFT and full support for real space (image mode) and reciprocal space (diffraction mode) calibrations. Separate computing device with display unit for capture, processing and display with latest software running on 64 bit.</p> <p>6. The camera should be supported by a separate computer of appropriate capacity, so that live video image acquisition and storage in hard-disk is possible.</p> <p>7. Additional computer with suitable capacity (Core i7 processor, 64 GB RAM, graphics card, 10 TB hard Disk) loaded with the software should be provided for offline data analysis and storage.</p>	
14.	Window less EDS Detector	<p>Minimum two air-cooled window less Silicon Drift Detector EDS of active area $\geq 100 \text{ mm}^2$ using at least one EDS, solid angle should be $\geq 0.90 \text{ srad}$; Energy Resolution at Mn-Kα should be at least 135 eV at 100,000 spectra/s or better; Capability to detect elements with atomic number >5 (i.e. from B onwards); Suitable for quantification of elements; Capability of auto-protection in case of vacuum loss or high electron flux.</p> <p>The EDS should be capable of single point analysis, multipoint analysis, selective element mapping, line scan, selected area analysis, qualitative and quantitative analysis (with ZAF correction).</p> <p>The EDS software should have features like peak auto identification routine, spectral match analysis, automatic background subtraction, spectrum processing using filters, least square fitting and peak de-convolution. Pile up correction and background noise reduction, simultaneous imaging and analysis should be possible. The EDS should be operable through the same GUI of the imaging system.</p> <p>The calibration standards for EDS should be provided. The supplier should arrange for seamless interfacing, software, installation and commission for EDS.</p>	

15.	Anti-Contamination Device	Liquid nitrogen based anti-contamination device to suppress specimen contamination should be provided. At least one spare dewar should be provided at no extra cost.	
16.	Sample holders	Low-background Double-tilt Holder- 1 No.; Single-tilt Holder - 1 No.; Double TILT Holder: 1 No. Multiple specimen holder: 1 No. Furnace based double tilt heating holder (Maximum Temperature 1000 °C): 1 No. Tomography holder: 1 No.	
17.	Advanced Plasma Cleaner	Advanced plasma cleaner should be provided with the microscope for cleaning of samples with minimal damage. It should be compatible with Indian power supply specification. System should have low energy glow discharge ion source to produce hydrogen and oxygen radicals. Ports should be available to fit all kinds of TEM side entry holders and SEM holders. The vacuum should be oil free. The cleaning chamber should have viewing ports and it should be computer controlled. The system should support minimum of three gases e. g. argon, hydrogen and oxygen. The cleaner should be capable of cleaning all types of samples along with holey carbon grids. Separate holders should be provided for cleaning holey carbon grids. Data supporting this should be provided along with this offer.	
17A	Dry Pumping Station	Adequate number of ports should be made available to store side entry TEM holders in vacuum. Required adaptors should also be provided. All requirements for the instrument to be operable should be provided.	
18.	User Interface	Fully computer-controlled system with window/Mac based software for operating the Microscope along with keyboard, mouse. Manual control panel using knobs, sample movement by track ball or joystick Control Panel and Joystick-Control panel including multifunction; keys/knobs for control and adjustment of TEM parameters (focus, magnification etc.) and manual joystick control for stage in X,Y,Z tilt and rotation directions	
19.	Work Station and Software	Latest desktop system with sufficient USB ports and windows/Mac compatible operating system to operate the microscope and all attachments and 24 inch or higher HD LED monitor. Licensed software should be provided by the company. All software used to operate the instrument, acquire and process the data should be licensed and should be factory preloaded. Remote license should be provided to monitor and facilitate applicable remote servicing online. Complete software for image analysis, topography, morphology, dynamic picture recording, and image manipulation for separation of different images, super posing and subtraction. Tomography softwares for data collection and 3D reconstruction should be provided. Image file in suitable format with all information embedded in it and it should be convertible to JPEG, TIFF & BMP formats. Backup software must be provided on optical media. Any further version	

		of the software and updates must be provided free of cost during the warranty period. Additional one windows and one mac computer with latest specifications, preloaded with the appropriate softwares and latest version of Adobe photoshop should be provided for offline data analysis.	
20.	Manual	One set of instruction manual and service manual (both hard and soft copy in English) should be supplied with the equipment.	
21.	Pre-Installation requirements	Complete technical details of pre-installation requirements should be furnished along with the technical bid to ensure quoted resolution. IIT (BHU), Varanasi will only provide the installation room, air-conditioning units and required electrical outlets and water connections. Vendors must conduct the site survey before installation at no additional cost. Vendor should provide SF ₆ , N ₂ or any other gas that might be needed for complete installation and smooth functioning of the microscope.	
22.	Installation	Installation, complete interfacing of the system with its subsystems, and commissioning is to be carried out by the vendor's factory-trained engineers, followed by a demonstration of the system's performance to the user's complete satisfaction	
23.	Training	The manufacturer/supplier of HRTEM should provide seven days onsite training initially during installation followed by regular follow up training every six months during the period of extended warranty on mutually convenient dates for hardware, software and application to the laboratory personnel in the installation, operation and maintenance of the instruments. The supplier or manufacturer should also provide dedicated five days applications training during the installation.	
24.	Warranty	System should be covered for comprehensive warranty for 5 years from the manufacturer including FE gun maintaining the specified resolutions at the level same as during the time of installation. All parts including spares should be covered under the warranty and this fact should be clearly and explicitly specified in the bid document. The comprehensive Warranty should cover: 1. All parts including accessories, spares, and labor on site including shipment at the site of installation. 2. Free maintenance and service on site or at factory with no cost, and 3. Regular up-gradation of softwares till the warranty is not over. 4. Warranty period should start from the date of handover of the machine. Delay in service request of more than 120 hours would be added up to the warranty period. This should be clearly mentioned in the technical bid.	
25.	Accessories	Chiller/compressor/UPS with Battery pack and other accessories as required should be included in the offer and should be manufactured by the vendor or internationally reputed manufacturer. Chiller, compressor and the UPS should also be covered under the warranty.	
26.	Power supply	Should meet Indian Power standards preferably without use of external converters	

27.	Support and service	<p>5. The manufacturer/supplier should have company trained and authorized engineer to address on-site service request within 48 hours. Any delay beyond 120 hours whether due to unavailability of manpower or spares or both would get added to the warranty period.</p> <p>6. The manufacturer should have provision to supply repair parts in foreign currency through direct order from IIT (BHU), Varanasi after the expiry of the warranty period.</p> <p>7. The repair issues must be attended to within 2 business days of reporting the issue. In case the parts are required to be imported for repairs, the same should be made available within 2 weeks from the date of reporting of the issue. Any extension in this time will need to be compensated by the manufacturer by extending the comprehensive warranty by the excess period taken (i.e period beyond 2 weeks) in completing the repairs.</p> <p>8. An application engineer and an errand person should be permanently stationed for 5 years at the site of installation at the cost of the company and both of them should be appointed with the consent of the customer.</p>	
28.	Compliance Statement	The supplier must submit a table indicating the compliance of the features of the model of the equipment being quoted with those given in the indent. Features not matching – must be clearly indicated. Additional features and features in the quoted equipment which are better than those in the indent – may be clearly explained. The supplier must submit technical brochures and proper application notes adequately explaining and confirming the availability of the features in the model of the equipment being quoted.	
29.	Required Documents along with technical specifications	The supplier must provide a comprehensive list of users of similar system in India and abroad. They should also submit the name(s) of the service engineer(s) employed by them who is/are competent in maintenance and servicing the equipment along with their locations in India.	
30.	Price	DDP Department of Metallurgical Engineering, IIT (BHU) should be quoted. The insurance for the whole system is for the factory warehouse to IIT BHU.	
31.	Delivery Time	Delivery must be completed within nine months from the date of the order being placed.	
32.	Additional Terms	<p>(32a) Compliance statement: With soft copy - point wise according to our document.</p> <p>(32b) User List: Provide user list with contact (address and Phone anywhere in India or abroad) details where the quoted model and/or similar systems have been installed in last 10 years.</p> <p>(32c) Original documents supporting the specifications should be provided.</p>	
33.	Technical expertise criteria	As the system is likely to be heavily used by multiple users across the country, it is desirable that the supplier has installed at least 10 or more, fully-functional, equivalent set-up in	

		India and several (>40) equivalent systems across the world. It is essential to enclose the information related to installation in India and worldwide of similar setup along with feedback and performance report from at least 5 users in India and 10 different users worldwide.	
34.	Installation	The entire process of installation, interfacing of the main system with its subsystems, and commissioning should be carried out by well-trained and technically competent engineers from the supplier. After installation, a complete demonstration of all the features of the HRTEM set-up should be included using the samples provided by the end-user, and the demonstration should meet the expectation of the end-users with complete satisfaction.	
35.	User application training	The supplier should arrange for a basic operational training to minimum 5 users after installation and hand over A first phase onsite application training should be arranged by the supplier by an Application expert. A second phase advanced application training should be arranged on-site by the supplier after 6 months with a mutually agreed dates.	
Part A.2			
1.	Probe Corrector	Probe corrector to be provided with STEM resolution of 0.080 nm with or without monochromator. In case monochromator is required to achieve the resolution, it should be included in the quote. Cs Probe corrector should be capable of higher order aberrations correction including the 5th order correction. Control of the corrector should be embedded in the TEM software (including routines for aligning the corrector).	
Part A.3			
1.	EELS System	A bottom mounted post column EELS for electron energy loss spectroscopy work operating on a separate computer should be provided. The operating voltage range for the EELS should be up to the maximum operating voltage of the microscope, its energy loss range should be upto 3000 eV with 8000 sps spectral rate, ultrafast electrostatic shutter. It should have hardware and software to acquire two spectra with different energy offset and exposure. Real time ZLP stabilization. Live STEM-EELS mapping. A single and high-end suitable server type computing system should be provided for smooth operation and data recording. A suitable system with all loaded softwares should be provided for offline data analysis.	

Part B: Ion Beam Milling System

The ion-beam thinning equipment should be capable of preparing transmission electron microscopy specimens (3 mm diameter) of both conducting and non-conducting samples, such as Silicon Carbide, Silicon, ceramics, multi-phase metals and composites etc. It should not induce damage in the specimen. Also, it should result in large electron transparent regions for viewing in a TEM; both conventional and high resolution TEM modes. The construction and operation of the equipment should be user-friendly.

The technical specifications of the equipment are given below:

1.	Item Name/Quantity	Ion beam milling system, Quantity: 1	Yes/No
2.	Ion-guns	<p>Two ion guns each with independently adjustable gas control utilizing mass flow controllers to permit either rapid milling or slow precise ion polishing.</p> <p>Ion beam energy shall be continuously adjustable from 100eV to 8keV or more.</p> <p>The alignment of the ion beams should be user friendly with either a fluorescent screen or a suitable mechanism. Ion beam current and operating voltage should be measurable independently.</p> <p>Ion gun should produce narrow ion beam width at the sample. Typical beam diameter and ion beam currents from each gun should be provided independently typically at 5 keV.</p> <p>The milling angle shall be continuously variable from +10 Deg to -10 Deg and fully adjustable during operation. It should be clearly mentioned whether it is motorized or not.</p> <p>The ion guns shall have no consumable parts or very long life time. Typically, greater than 30,000 hours of continuous operation.</p> <p>The current range should be variable from 0 to 100 micro Amps.</p> <p>The current should be measurable for each gun independently and measured at the gun.</p> <p>Special Operational Mode for preparing cross sectional samples for TEM Analysis should be offered as standard.</p> <p>Ion Gun Energies for both the ion gun should be independently controlled.</p>	
2.	Stage and Specimen Holders	<p>A specimen exchange mechanism shall be incorporated in the system to permit loading or unloading of samples without venting the work chamber to atmosphere. Specimen stage should allow rapid transfer of specimens (~1-2 minutes).</p> <p>The Specimen stage should have provision for the rotation of the specimens during milling. Rotational speed shall be continuously variable from 0 – 5 rpm or more.</p> <p>Provision of a mechanism for Sector milling (i.e, milling the specimens from only one side or anyside) over a range of 45 to 90 degrees should be available. The mechanism should permit the preparation of cross-sectional TEM specimens of</p>	

		<p>multilayer's without significant milling of the glue-line (or bonding layer used to prepare cross-sections).</p> <p>The Stage shall incorporate X, Y motion to assist the user in positioning the specified mill location at the center of the beam polishing area. The minimum stage travel shall be $\sim \pm 0.5$ mm (i.e. ~ 1 mm in total) in X and Y directions. Please note that it should be possible to load the sample in ion milling tool for X & Y Alignment while the sample is mounted on the specimen post.</p> <p>The specimen holder should be able to hold 3 mm diameter TEM specimens by either clamping mechanism or sticking mechanism. For loading/unloading of the sample in specimen holders, suitable user-friendly mechanism should be provided. Also they can be rapidly and easily transferred in to the ion beam thinning equipment.</p> <p>Specimen heating: A glue-type specimen holder shall be supplied to optimize heat dissipation.</p> <p>The holder should have long life time and durability. They should be compatible for cooling the TEM specimens with liquid nitrogen during the ion milling</p> <p>Cold stage shall be offered as standard as per the following specifications:</p> <p>Dewar and conductor rod should share the main vacuum system. 6-8 hour Dewar capacity</p> <p>Sample temperature: -The specimen can be kept in user defined temperature in the range of -150°C to 30°C or better, during milling. A mechanism to measure the relevant temperature should be provided. The cooling/warm-up of the specimen's should be done rapidly ($\sim 30-45$ minutes) and in-built mechanism for this operation should be provided.</p> <p>Electronic temperature regulation: minimum range (-180°C to $+100^{\circ}\text{C}$)</p> <p>Through transmission illumination of sample</p> <p>Built in Dewar heater is essential.</p>	
3.	Specimen Viewing	<p>In-situ viewing: Any time without shutting down the ion guns or raising the sample into the airlock.</p> <p>Shutter: An automatic shutter shall be incorporated to reduce window contamination when not viewing the specimen.</p> <p>Sample illumination: Reflection and through transmission with the intensity set via the Touch Screen.</p>	

		A Stereo Optical Microscope 40X, 80X magnification should be supplied along with the ion milling equipment as standard.	
4.	Milling Termination	Milling termination by elapsed timer or optional light operated Auto-Terminator.	
5.	User Interface	A color touch-screen graphical user interface (GUI) should be supplied as standard. The GUI must be located on the front panel of the system for easy access and viewing. All system functions (gun settings, gas flow controls, stage movements, etc.) shall be controlled through this screen. Remote access to the system must be available through a network connection. The communication protocols will be used for monitoring the system's status, starting, pausing, and/or stopping the milling process.	
6.	Vacuum System and vacuum reading	The vacuum system shall be totally self-contained within the enclosure. A totally oil-free vacuum system, pumping with turbo pump and oil free backing pump Work chamber base pressure: $\sim 1E-6$ Torr Operating pressure: $\sim 1E-5$ Torr. Suitable gauges to monitor the vacuum levels in main chamber and baking pump. Vacuum gauge should be present in the chamber area to read the vacuum in the specimen preparation area Sample exchange through air lock	
7.	Power	230 V, 50 Hz, single phase	
8.	Cooling	The system shall be air cooled only, no water cooling should be required.	
9.	Documentation	The detailed user instruction manual, operation/instruction manual, trouble shooting and maintenance manual and wiring diagrams in English should be supplied free of cost along the system	
10.	a) Installation/ Commissioning b) Warranty	d) The equipment should be installed in the laboratory without additional cost. Also, two scientists should be trained in the laboratory. e) 36 months warranty from the date of acceptance of the equipment. f) Item should be quoted with DDP, Department of Metallurgical Engineering, IIT(BHU), Varanasi.	
11.	Spare/ consumable	Following consumables should be supplied with the equipment as a part of standard package – Glue Type Sample Holder – Qty 1 Clamp Type Sample Holder – Qty 3 Specimen Post Copper Moly disulfide lubricant, 1gm – Qty 1 Quad- seal #111, Cold stage set of 2 – Qty 1 Cold Stage Window (pkg. of 10) – Qty 1 Comprehensive Service Kit	

Part C

1.	Item name/quantity	Dimple grinder with microscope, Quantity: 1	Yes/No
2.	Power supply	230 V, 50 Hz power supply typically compatible with Indian power system	
3.	Sample size	Suitable for 3mm diameter sample	
4.	Dimpling process specs	Dimpling depth down to 10 microns or less. Automatic termination of the process. Digital Micrometer & Analog Micrometer to indicate depth in Dimple Grinder is essential. Magnetic base and platen should be provided for sample assembly.	
5.	Sample monitoring during grinding	A microscope for alignment and monitoring of the sample essential.	
	Consumables/spare parts	Phosphor bronze (PB), spherical, 2mm wide set of 4 - Qty 1 set. Stainless steel (SS), spherical, 2mm wide set of 4 – Qty 1 set. Polishing Wheel 15mm Ø (Standard) set of 4 - Qty 1 set Felt Polishing Rings (15mm Ø) set of 15 – Qty 2 set. Diamond Polishing Compound (2- 4um), 5gm – Qty 2 CBN 0- 2um Polishing Compound, 5g Syringe – Qty 2 CBN 4- 6um Polishing Compound, 5g Syringe – Qty 2 Alumina Suspension 0.05um, 2 oz. – Qty 2	
6.	a) Installation & commissioning b) Warranty	The equipment should be installed in the laboratory without additional cost. Start-up assistance and training should be included for two scientists in the laboratory. 36 months warranty from the date of acceptance of the equipment.	
7.	Documentation	Operating and maintenance manual, wiring diagrams, spare part list as applicable	
8.	Disc Punch	Suitable for 3mm disc punching with ease of removal of the punched disc and it should be able to punch ~150 micron thick sample.	
9.	Specimen hot plate	Temperature controllable specimen hot plate for mounting sample should be quoted.	

		Sufficient quantity of mounting wax should be provided. The amount of mounting wax provided with the hot plate should be quoted.	
10.	Shipment	The items should be quoted with DDP Dept. of Metallurgical Engineering, IIT(BHU), Varanasi.	

Other Terms and Conditions:

1. All equipment must be compatible with Indian electrical standards and codes. Engineering documentation on the physical sizes and weights of all major and minor components must be submitted.
2. IIT BHU is fully exempted from payment of GST on Imported Goods against DSIR certificate.
3. Tender Specific Manufacturer Authorization Form from OEM Required.
4. The Institute reserves the right of accepting or rejecting any/all quotations without assigning any reason thereof.
5. All prices should be DDP Dept. of Metallurgical Engineering, Indian Institute of Technology (BHU), Varanasi
6. Installation by Factory Trained Service Engineer is mandatory.

**Signature of the Authorized Official with
Seal**

SECTION 9

ANNEXURE III

PREVIOUS SIMILAR ORDER EXECUTED

Please quote best minimum prices applicable for a premier Educational and Research Institution. The party must give details of purchase orders identical or similar equipment supplied to any IITs/NITs/Govt. Office/PSU/University/Autonomous Body as per below Format in last Five years (to be enclosed in Price Bid / Commercial Bid) along with the final price paid and details are mandatory.

Name of the Firm _____

Order placed by (Full address of Purchaser)	Order No. and Date	Description and quantity of ordered equipment	Value of Order	Date of completion of delivery as per contract	Remarks indicating reasons for late delivery, if any and justification for price difference of their supply order & those quoted to us	Has the Equipment being installed satisfactorily (Attach a Certificate from the Purchaser/ Consigner)	Contact Person along with Telephone No., Fax No. and e-mail address.

(Kindly enclose the scan copy of aforementioned purchase orders)

Details of Technical Expert

Name of application specialist / Service Engineer who have the technical competency to handle and support the quoted product during the warranty period.		
Name of the organization	Name of Contact Person	Contact No.

Signature and Seal of the Manufacturer / Bidder _____

Place : _____

Date : _____

BID SUBMISSION

Online Bid Submission:

The Online bids (complete in all respect) must be uploaded online in **two** Envelops as explained below:-

Envelope - 1 (Following documents to be provided as single PDF file)			
Sl. No.	Document	Content	File Types
1.	Technical Bid	Technical Compliance Sheet	.PDF
2.		Organization Declaration Sheet	.PDF
3.		Checklist, Tender Acceptance, Tender Form, Annexure 1 etc.	
4.		List of organizations/ clients where the same products have been supplied (in last two years) along with their contact number(s). (Annexure-III)	.PDF
5.		Technical supporting documents in support of all claims made at Annexure-I	.PDF
6.		Bid Securing Declaration Form as EMD and Tender fee submission proof	.PDF
7.		Brochure of quoted product	.PDF
8.		Other Documents, if any which are not covered above	.PDF
Envelope - 2			
Sl. No.	Document	Content	
1	Financial Bid	Price bid Form should be submitted in PDF format.	.PDF
2		BoQ in .xls Format	.XLS

(Letterhead of the bidder)

Bid Securing Declaration Form

To

(insert complete name and address of the purchaser)

I/We. The undersigned, declare that:

I/We understand that bids must be supported by a Bid Securing Declaration.

I/We accept that I/We may be disqualified from bidding for any contract with IIT(BHU), Varanasi for a period of two years from the date of notification if I am /We are in a breach of any obligation under the bid conditions, because I/We

a) have withdrawn/modified/amended, impairs or derogates from the tender, my/our Bid during the period of bid validity or its extended period, if any; or

b) having been notified of the acceptance of our Bid by the purchaser during the period of bid validity

(i) fail or refuse to execute the contract, if required, or

(ii) fail or refuse to furnish the Performance Bank Guarantee, in accordance with the Instructions to Bidders.

c) If the bidder is found indulging in any corrupt, fraudulent or other malpractice in respect of the bid;

or

d) If there is a discrepancy between words and figures quoted by the bidder then in that case the amount quoted in words will be treated as final.

I/We understand this Bid Securing Declaration shall cease to be valid if I am/we are not the successful Bidder, upon the earlier of (i) the receipt of your notification of the name of the successful Bidder; or (ii) thirty days after the expiration of the validity of my/our Bid.

Signed: _____

(Insert signature of person whose name and capacity are shown in Bid Securing Declaration)

Name: _____

(insert complete name of person signing the Bid Securing Declaration)Duly authorized to sign the bid for an on behalf of **(insert complete name of Bidder)**

Dated on _____ day of _____ (insert date of signing)

Corporate Seal (where appropriate)

(Note: In case of a consortium, the Bid Securing Declaration must be in the name of all partners to the consortium that submits the bid)