

E-TENDER DOCUMENT

**NATIONAL INSTITUTE OF TECHNOLOGY JAMSHEDPUR
P.O.:NIT, JAMSHEDPUR, (JHARKHAND)- 831014**

(An Institution of National Importance under Ministry of HRD, Govt. of India)



**OPEN TENDER NOTICE
(E-Procurement mode)**

Tender Notice No. : NITJSR/EED/MP-MC LAB/ST-128/S&P/TENDER/2019/50 Dated:23/07/2019

PROCUREMENT OF EQUIPMENT FOR ELECTRICAL MEASUREMENTS LABORATORY

LAST DATE OF SUBMISSION OF TENDER: 16/08/2019 UP-TO 17.30 Hrs

DATE OF OPENING OF TENDER: 19/08/2019 AT 11.00 Hrs

KIND ATTENTION FOR TAKING ASSISTANCE, IF ANY.

CPP Portal web site: www.eprocure.gov.in

CPP Portal Help Desk Toll Free No.:0120-4200462, 0120-4001002, 0120-4001005, 0120-6277 787

E-Mail : Technical Support: [eproc\[at\]nic\[dot\]in](mailto:eproc[at]nic[dot]in)

Policy Related : [cphp-doe\(at\)nic\(dot\)in](mailto:cphp-doe(at)nic(dot)in)

NIT Jamshedpur Help No.: (91)+0657 -2374249, 2374046, 2373629,

Web site: www.nitjsr.ac.in Fax No. :(91) +0657- 2373246

PREPARED BY : STORES & PROCUREMENT SECTION, NIT JAMSHEDPUR



NATIONAL INSTITUTE OF TECHNOLOGY JAMSHEDPUR
P.O.: NIT, JAMSHEDPUR, (JHARKHAND) – 831014
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E-PROCUREMENT OPEN TENDER NOTICE

Tender Notice No. : NITJSR/EED/MP-MC LAB/ST-128/S&P/TENDER/2019/50 Dated:23/07/2019

**PROCUREMENT OF EQUIPMENT FOR ELECTRICAL MEASUREMENTS
LABORATORY**

National Institute of Technology Jamshedpur invites e-Tender offer under two bid systems (Technical and Financial) from reputed and experienced Firm/Agency for supply, installation & demonstration of **PROCUREMENT OF EQUIPMENT FOR ELECTRICAL MEASUREMENTS LABORATORY** at NIT Jamshedpur under terms & conditions specified in the tender document.

Sl. No	Name of Equipment	Quantity
1	Temperature, Humidity & Pressure development Work bench Trainer system	03 Nos.
2	Strain Gauge Trainer, LVDT & Load Cell Development Work Bench Trainer System	03 Nos.
3	Proximity Trainer, Accelerometer Measurement Ultrasonic Distance Development Work Bench Trainer System	03 Nos.
4	Universal Transducer Development board	03 Nos.
5	Temperature Calibration and Measurement	02 Nos.
6	Process Control Trainer	02 Nos.
7	Torque and Angular Displacement Measurement system	02 Nos.
8	Photoelectric, Magnetic and Photo Transducer Trainer	03 Nos.
9	Stepper and BLDC Motor Trainer	03 Nos.

Interested and Reputed Manufacturers or their authorized agents/ dealers/ distributors/channel partners are requested to send their offer on line in two bid systems (Technical and Financial) through CPP Portal site (www.eprocure.gov.in/eprocure/app).

The complete Tender document is available on CPP Portal site (www.eprocure.gov.in/eprocure/app). The details of tender are also available at NIT Jamshedpur web-site <http://www.nitjsr.ac.in>. Only on-line bids through the e-procurement portal of NIC will be accepted. Last date of bid submission is 16/08/2019 at 17:30 Hrs.

Asstt. Registrar (S&P)
NIT, Jamshedpur

E-PROCUREMENT OPEN TENDER NOTICE

SCHEDULE

Name of Organization	National Institute of Technology Jamshedpur
Tender Type(Open/Limited/EOI/Auction/Single)	Open
Tender Category (Services/Goods/works)	Goods
Type/Form of Contract (Work/Supply/Auction/Service/Buy/Empanelment/ Sell)	Supply
Product Category (Civil Works/Electrical Works/Fleet Management/ Computer Systems)	PROCUREMENT OF EQUIPMENT FOR ELECTRICAL MEASUREMENTS LABORATORY
Is Multi Currency Allowed	No
Date of Issue/Publishing	23/07/2019 (11:30 Hrs)
Document Download Start Date	23/07/2019 (11:30 Hrs)
Document Download End Date	16/08/2019 (17:30 Hrs)
Date for Pre-Bid Conference	NA
Last Date & Time for Uploading of Bids	16/08/2019 (17:30 Hrs)
Date and Time of Opening of Technical Bids	19/08/2019 (11:00 Hrs)
Tender Fee	Rs. NIL
EMD (Ernest Money Deposit)	Rs. 40,000/ (Forty Thousand Only) FOR (EMD) (To be paid through NEFT/RTGS). NIT Jamshedpur Bank details are as under: Name of the Bank A/C : National Institute of Technology Jamshedpur SBI A/C No. : 10678399349 Name of the Bank : State Bank of India, NIT Branch, Jamshedpur-831014 IFSC Code : SBIN0001882 MICR Code : 831002004 (This is mandatory that UTR Number is provided in the on-line quotation/bid).
Exemption from the payment of EMD and Tender fee	EMD exemption is allowed only who are registered with the Department of Micro, Small and Medium Enterprises (MSME) as Micro and Small Enterprises (MSEs) as defined in MSE Procurement Policy OR Central Purchase Organization OR the concerned Ministry or Department under appropriate Category.
No. of Covers (1/2/3/4)	02
Bid Validity days (180/120/90/60/30)	180 days (From date of opening of tender)
Address for Communication	Asstt. Registrar (S&P), NIT Jamshedpur-831 014
Contact No.	0657- 2374249, 2374046, 2373629
E-mail Address	skbhagat.adm@nitjsr.ac.in

IMPORTANT INFORMATION TO THE BIDDERS

Any bidder may search the tender through the following process:

1. Go to the www.eprocure.gov.in
2. Click on e procurement
3. Click on tender search
4. Search with "NITJSR"
5. Click on Go
6. Tenders will appear

Detailed Process to search/Submission/ Registration/ Preparation/ the tender through the following process

Tender Documents may be downloaded from Central Public Procurement Portal <http://eprocure.gov.in/eprocure/app>. 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".

Tenderers can access tender documents on the website (For searching in the NIC site, kindly go to Tender Search option and type 'National Institute of Technology Jamshedpur'. Thereafter, Click on "GO" button to view all NIT Jamshedpur tenders). 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.

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

Instructions for Online Bid Submission:

As per the directives of Department of Expenditure, this tender document has been published on the Central Public Procurement (CPP) 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/app>

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 "**Error! Hyperlink reference not valid.**" 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 (DSC) (Class II or Class III Certificates with signing key usage) issued by any Certifying Authority recognized by CCA India (e.g. Sify / TCS / n Code / e Mudhra 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 / e Token.

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.

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.

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 fee / EMD as applicable and enter details of the instrument. Whenever, EMD / Tender fees are sought, bidders need to pay the tender fee and EMD separately on-line through NEFT/RTGS (Refer to Schedule).
- 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 colored (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.

OR

In some cases Financial Bids can be submitted in PDF format as well (in lieu of BOQ).

- 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.

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. The contact number for the helpdesk is 1800 233 7315.

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>

KIND ATTENTION FOR TAKING ASSISTANCE, IF ANY.

CPP Portal web site: www.eprocure.gov.in

CPP Portal Help Desk Toll Free No.:0120-4200462, 0120-4001002, 0120-4001005 , 0120-6277 787

E-Mail : Technical Support: [eproc\[at\]nic\[dot\]in](mailto:eproc[at]nic[dot]in)

Policy Related: [cppp-doe\(at\)nic\(dot\)in](mailto:cppp-doe(at)nic(dot)in)

NIT Jamshedpur web site: www.nitjsr.ac.in

NIT Jamshedpur Help No.: (91)+0657- 2374249, 2374046, 2373629

INSTRUCTIONS TO THE BIDDERS

1. The bidders who are desirous of participating in 'e'- procurement, can be downloaded the tender document from CPP Portal: <https://eprocure.gov.in/eprocure/app> . Bid has to be submitted online.
2. The bidders are advised to go through the tender documents and understand the terms and conditions specified therein before submitting the tender. **Purchase preference will be given as per the Public Procurement (Preference to Make in India) Order 2018 policy Govt. of India.**
3. **PREPARATION OF BIDS:** The offer/bid should be prepared in two bid systems (i.e.) Technical bid and financial bid. The technical bid should consist of all technical details along with commercial terms and conditions. Financial bid should indicate item wise price for the items mentioned in the technical bid. All document/information should be submitted in PDF format. FINANCIAL BID (BOQ) should be uploaded in **xls. Price will be evaluated item wise.**

Technical Bid: Technical Bid should contain the following:

- a. Company Profile in prescribed TENDER FORM as TECHNICAL BID FOR PRE-QUALIFICATION in as **ANNEXURE "I"**
- b. Declaration in prescribed format in as **ANNEXURE "II"** (on printed letter head of the Bidder's firm indicating thereon Sales Tax Registration, FAX, Email, Telephone numbers, etc.)
- c. Mandatory Compliance Report I & II as per **ANNEXURE – "IV & V"**
- d. All requisite supporting documents in support of all claims made in tender document and **ANNEXURE -I to ANNEXURE -V**

Financial Bid (BOQ): submit their price bids in the standard formats prescribed in the Tender documents in xls. Financial Bid should contain Price only in prescribed TENDER FORM as FINANCIAL BID **ANNEXURE "III"**.

4. **It is mandatory to submit the bid only in prescribed Format otherwise bid will be rejected.**

The bidder should upload the scanned copies of all the relevant certificates and documents of Technical bid and the financial bid separately in PDF file online through portal <http://eprocure.gov.in/eprocure/app>.

5. **EARNEST MONEY DEPOSIT (EMD):** The tenderer should submit an EMD amount through RTGS/NEF, if any. The Technical Bid without EMD would be considered as UNRESPONSIVE and will not be accepted. The EMD will be refunded without any interest to the unsuccessful bidders after the award of contract.
 - I. Without EMD, the technical bid will not be considered and the tender will be rejected summarily. EMD exemption is not allowed.

- II. The EMD should remain valid for a period of 03 Months. If the EMD is not found valid in terms of amount wise, period wise or otherwise, technical bid of the bidder are liable to be rejected.
 - III. Earnest Money is liable to be forfeited and bid is liable to be rejected, if the tendered withdraw or amends / impairs or derogates from the tender in any respect.
 - IV. EMD of unsuccessful bidders will be returned within one month of tender evaluation.
 - V. EMD of the selected successful bidder will be refunded on after submission the performance security.
 - VI. No interest will be payable by the NIT Jamshedpur on the Earnest Money Deposit/ performance security in any quarter.
 - VII. Withdrawal is not allowed after submission of tender. EMD of the successful bidders who fail to honour the exceptions of purchase order with prescribed terms & condition shall stand forfeited. No representation in this regard shall be entertained by this Institute.
6. **EMD exemption is allowed only who are registered with the Department of Micro, Small and Medium Enterprises (MSME) as Micro and Small Enterprises (MSEs) as defined in MSE Procurement Policy OR Central Purchase Organization OR the concerned Ministry or Department under appropriate Category.**
7. The successful bidder shall require to submit the performance security in the form of irrevocable bank guarantee issued by any Indian Nationalized Bank for an amount which is equal to the 10% of order value within 21 days from the date of receipt of the purchase order and should be kept valid for a period of 60 days beyond the date of completion of warranty period.
- I. EMD of the selected successful bidder will be refunded on after submission the performance security.
 - II. No interest will be payable by the NIT Jamshedpur on the Earnest Money Deposit/ performance security in any quarter.
8. **MODE OF SUBMISSION OF BID:** Bid must be submitted for full quantity of item and as per Technical specification through CPP Portal site (www.eprocure.gov.in/eprocure/app).
- I. 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.
 - II. The bidder has to digitally sign and upload the required bid documents one by one as indicated in the tender document.
 - III. Bidder has to select the payment option as "on-line" to pay the tender fee / EMD as applicable and enter details of the instrument. Whenever, EMD/Tender fee is sought, bidders need to pay the tender fee and EMD separately on-line through NEFT/RTGS (Refer to Schedule).

IV. Kindly add/upload scanned copy of **Technical bid** along with all relevant documents of compliance sheet in a **single PDF** file and **financial bid (BOQ)** in **xls** file separately.

9. All pages of the bid document shall be signed by the person or persons duly authorized to sign, on behalf of the bidder.
10. Offers should be clearly written or typed without any cutting or over writing. All cutting / over writing must be initialled and stamped.
11. Bidders must confirm the acceptance of all the terms and conditions of the tender.
12. Any non-acceptance or deviations from the terms and conditions must be CLEARLY mentioned. However, bidder must note that any conditional offer or any deviation from the terms and conditions of this tender may render the bids liable for rejection.
13. Furnishing of any false information/ fabricated document would lead to rejection of tender at any stage.
14. There shall NOT be any price indication in the technical bid. If for any reason, it is found that the technical bid reveals the price bid related details in any manner whatsoever will be summarily rejected in the first instance itself.

15. OPENING OF BIDS:

I. Envelop (Cover) 1 i.e. Technical Bid will be opened on the scheduled date and time mentioned in the tender enquiry in the NIT'S administrative building in presence of committee of officials and interested vendors or their authorized representatives. Tenderer may be present at the time of opening of the Tender.

II. Envelop (Cover) 2 i.e. financial bid of only those firms/agencies which satisfy technical requirements will be opened; a date which will be intimated to the qualified bidders after the scrutiny of technical bids and the same will be posted on web site. The bidders, whose Technical Bids are not found acceptable will be informed for the same and their financial bid will not be opened and EMD will be returned to them.

16. PERIOD OF VALIDITY OF BIDS: The bid shall remain valid and open for acceptance for a period of 180 days from the last date fixed for receiving the same. A bid valid for a shorter period shall be rejected by the Purchaser as non responsive.

17. AMENDMENT OF TENDER DOCUMENTS: at any time prior to the last date of receipt of bids, Institute may for any reason, whether at its own initiative or in response to a clarification requested by prospective bidder, modify the Tender document by an amendment.

18. EXTENSION OF LAST DATE: The Director, NIT Jamshedpur, may in his discretion extend the last date for submission of the Tender and such extension shall be binding on all the Bidders.

19. QUANTITY: Quantity mentioned is only indicative. The actual requirement may vary at time of placement of the purchase order.

20. CLARIFICATION OF TENDER DOCUMENT: a prospective bidder requiring any clarification of the Tender document may communicate to the Registrar/Asstt. Registrar (S&P) NIT Jamshedpur during office hours.

21. DELIVERY INTEGRATION & INSTALLATION:

I. Supply, integration & Installation must be completed within 45 days from the date of award of the work to the successful bidder.

II. Delivery: Free at site to the i.e. National Institute of Technology Jamshedpur.

22. PAYMENT:

I. 100% Payment will be made only after the supply, Installation & demonstration of the items & completion of work in good and satisfactory condition and receipt of the relevant Bill & Challan each in triplicate with other relevant. No advance payment will be made.

II. No part payment/advance payment shall be made. Payment shall be made by on-line through **NEFT/RTGS**.

23. DISCRETION: The Institute reserves the right of accepting any bid other than the lowest or even rejecting all the bids without assigning any reasons therefore. The decision of the Director NIT Jamshedpur OR Person authorized by him is final in all matters of tender and purchase.

E-PROCUREMENT OPEN TENDER NOTICE

GENERAL TERMS AND CONDITION (CONDITION OF CONTRACT)

1. **Prices:** The price should be quoted in net per unit in Indian Rupee F.O.R. NIT Jamshedpur (after breakup) and must include all Packing - Forwarding charges, Freight charges and delivery charges. The offer/bid should be exclusive of taxes and duties, which will be paid by the purchaser as applicable. However the **percentage of GST** shall be clearly indicated separately as per the format of **Financial Bid (BOQ): Annexure III in xls**. The stores are required to be delivered at the Institute under the Suppliers' own arrangement, free of additional charges. No escalation in respect of materials, labour, freight etc. will be allowed in any shape. **Rate of item should be quoted full quantity of item. Requirement will be evaluated item wise.**
2. The Prices are to be quoted in Indian National Rupee (INR) in figures and words. In case of discrepancy, the rate quoted in words will be taken as valid. Over-writing /over-typing or erasing of the figures which render it doubtful or ambiguous are not allowed and shall render the bid invalid.
3. NATIONAL INSTITUTE OF TECHNOLOGY JAMSHEDPUR (Jharkhand) -831014 has been registered with the Department of Scientific & Industrial Research (DSIR) for purposes of availing exemption/partial exemption for GST, therefore, GST will be paid as per provision.

NIT Jamshedpur will issue a valid declaration to this effect for availing exemption/ partial exemption, Therefore, It is mandatory to submit the price break-up only as in prescribed Format of Financial bid otherwise bid will be treated as invalid.

4. **Force Majeure:** The Supplier shall not be liable for forfeiture of its performance security, liquidated damages or termination for default, if and to the extent that, it's delay in performance or other failure to perform its obligations under the Contract is the result of an event of Force Majeure.
 - I. 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.
 - II. 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.

5. **Risk Purchase Clause:** In event of failure of supply of the item/equipment within the stipulated delivery schedule, the purchaser has all the right to purchase the item/equipment from the other source on the total risk of the supplier under risk purchase clause.
6. **Packing Instructions:** Each package will be marked on three sides with proper paint/indelible ink, the following:
 - I. Item Nomenclature
 - II. Order/Contract No.
 - III. Country of Origin of Goods
 - IV. Supplier's Name and Address
 - V. Consignee details
 - VI. Packing list reference number
7. **Documents:** The supplier shall submit the following documents, if not submitted, the Supplier will be responsible for any consequent expenses.
 - I. 3 Copies of the Supplier invoice showing contract number, goods' description, quantity, unit price, total amount;
 - II. Acknowledgment of receipt of goods from the consignee(s) by the transporter;
 - III. Manufacturer's/Supplier's warranty certificate;
 - IV. Two copies of the packing list identifying the contents of each package.
8. **Delivery:** Supply and installation must be completed **within 45 days** from the date of award of the work to the successful bidder.
9. **Delayed delivery:** If the delivery is not made within the due date for any reason, the Committee will have the right to impose penalty 1% per week and the maximum deduction is 10% of the contract value / price.
10. **Resolution of Disputes:** The dispute resolution mechanism to be applied pursuant shall be as follows:
 - I. In case of Dispute or difference arising between the Purchaser and a domestic supplier relating to any matter arising out of or connected with this agreement, such disputes or difference shall be settled in accordance with the Indian Arbitration & Conciliation Act, 1996, the rules there under and any statutory modifications or re-enactments thereof shall apply to the arbitration proceedings. The dispute shall be referred to the Director, NIT Jamshedpur and if he is unable or unwilling to act, to the sole arbitration of some other person appointed by him willing to act as such Arbitrator. The award of the arbitrator so appointed shall be final, conclusive and binding on all parties to this order.
 - II. In the case of a dispute between the purchaser and a Foreign Supplier, the dispute shall be settled by arbitration in accordance with provision of sub-clause (a) above. But if this is not acceptable to the supplier then the dispute shall be settled in accordance with provisions of UNCITRAL (United Nations Commission on International Trade Law) Arbitration Rules.

- III. The venue of the arbitration shall be the place from where the order is issued.
- IV. Any legal disputes arising out of any breach of contract pertaining to this tender shall be settled in the court of competent jurisdiction located within Seraikella-kharsawan, Jharkhand Jurisdiction only.
11. **Applicable Law:** The Contract shall be interpreted in accordance with the laws of the Union of India and all disputes shall be subject to place of jurisdiction. The place of jurisdiction would be Seraikella-kharsawan, Jharkhand INDIA.
12. **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.
13. **Installation & Demonstration:** The supplier is required to done the installation and demonstration of the instrument/equipment within week of the arrival of materials at the NIT Jamshedpur site of installation, otherwise the penalty clause will be the same as per the supply of materials.
14. **Training, demonstration and Maintenance:** Vendor should provide us training on operation and application at NIT Jamshedpur after installation, as in case may be. Vendor should be easily accessible and available on demand within 24 hours of any problem in the instrument. The service personnel should respond within 24 hours and be on campus within 48 hours for repairs.
15. **Performance Security:** The successful bidder shall require to submit the performance security in the form of irrevocable bank guarantee issued by any Indian Nationalized Bank for an amount which is equal to the 10% of payable amount value within 21 days from the date of receipt of the purchase order and should be kept valid for a period of 60 days beyond the date of completion of warranty period.
16. **Warranty:** The complete Equipment/instrument and accessories excluding consumables should be under warranty for a period of **three (03) years** or more from the date of installation. Extended warranty is preferable. In case of breakdown during the warranty period, a competent service engineer of the supplier should make as many visits as are necessary to rectify the problem and replace the faulty parts. But it should be repaired within 7 days from the date and time of complaint lodged by the user. The warranty should be comprehensive on site.
17. **Governing Language:** The contract shall be written in English language. 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.
18. **Taxes and Duties:** Suppliers shall be entirely responsible for all taxes, duties, license fees, octroi, road permits, etc., until delivery of the contracted Goods to the Purchaser. National Institute of Technology

Jamshedpur is eligible for availing exemption/partial exemption for GST, therefore, GST will be paid as per provision.

19. **Payment:** For Indigenous supplies, 100% payment shall be made by the Purchaser against delivery, inspection, successful installation, commissioning and acceptance of the equipment at NIT Jamshedpur in good condition and to the entire satisfaction of the Purchaser and on production of unconditional performance bank guarantee and on receipt of the relevant Bill & Challan each in triplicate with other relevant documents. No advance payment will be made.
20. **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.
21. **Site Preparation:** The supplier shall inform to the Institute about the site preparation, if any, needed for the installation of equipment, immediately after the receipt of the purchase order. The supplier must provide complete details regarding space and all the other infrastructural requirements needed for the equipment, which the Institute should arrange before the arrival of the equipment to ensure its timely installation and smooth operation thereafter.

The supplier shall visit the Institute and see the site where the equipment is to be installed and may offer his advice and render assistance to the Institute in the preparation of the site and other pre-installation requirements.

22. **Pre-Installation Requirement:** The bidder should mention pre-installation requirements for the equipment like ambient temperature, humidity, whether specification, power specifications, etc., when items are provided full performance satisfactions, should be demonstrated.
23. **Spare Parts:** The Supplier may be required to provide any or all of the following materials, notifications, and information pertaining to spare parts manufactured or distributed by the Supplier:
 - I. Such spare parts as the Purchaser may elect to purchase from the Supplier, providing that this election shall not relieve the Supplier of any warranty obligations under the Contract; and
 - II. In the event of termination of production of the spare parts:
 - III. Advance notification to the Purchaser of the pending termination, in sufficient time to permit the Purchaser to procure needed requirements; and
 - IV. Following such termination, furnishing at no cost to the Purchaser, the blueprints, drawings and specifications of the spare parts, if requested.
 - V. Supplier shall carry sufficient inventories to assure ex-stock supply of consumable spares for the Goods, such as gaskets, plugs, washers, belts etc. Other spare parts and components shall be supplied as promptly as possible but in any case within six months of placement of order.

VI. The supplier should provide all spares required for making the instrument operational. Maintenance Vendor should be easily accessible and available on demand within 24 hours of any problem in the instrument.

24. **Defective Equipment:** If any of the equipment supplied by the Tenderer is found to be substandard, refurbished, un-merchantable or not in accordance with the description/specification or otherwise faulty, the committee will have the right to reject the equipment or its part. The prices of such equipment shall be refunded by the Tenderer with 18% interest if such payments for such equipment have already been made. All damaged or unapproved goods shall be returned at suppliers cost and risk and the incidental expenses incurred thereon shall be recovered from the supplier. Defective part in equipment, if found before installation and/or during warranty period, shall be replaced within 45 days on receipt of the intimation from this office at the cost and risk of supplier including all other charges. In case supplier fails to replace above item as per above terms & conditions, NIT Jamshedpur may consider "Banning" the supplier.
25. **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:
- I. If the Supplier fails to deliver any or all of the Goods within the period(s) specified in the order, or within any extension thereof granted by the Purchaser; or
 - II. If the Supplier fails to perform any other obligation(s) under the Contract.
 - III. 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:

- I. "**Corrupt practice**" means the offering, giving, receiving or soliciting of anything of value to influence the action of a public official in the procurement process or in contract execution.
 - II. "**Fraudulent practice**" means 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.
26. **ACKNOWLEDGEMENT:** Receipt of the Order should be acknowledged within a week.

E-PROCUREMENT OPEN TENDER NOTICE

SPECIFICATION AND ALLIED TECHNICAL DETAILS

Specification and allied Technical Details of required **PROCUREMENT OF EQUIPMENT FOR ELECTRICAL MEASUREMENTS LABORATORY**

S.No.	NAME OF THE EQUIPMENT	SPECIFICATIONS	QUANTITY
1	Temperature, Humidity & Pressure development Work bench Trainer system	<ul style="list-style-type: none"> • Temperature Module. • Operational amplifier and signal conditioning circuit to compulsive output inbuilt ADC conversion.LCD 16*2 display to observe temperature of different temperature sensors. • ON board programming facility of PIC18F452 • Humidity module. • Linear dc output voltage for 0-100% RH on board SYH-2/SYWH-2 Sensor. • Wide temp. compensation range, microcontroller 8051 based humidity control system. • 16*2 LCD display unit show output system comes with user manual, connecting cables and power supply. • Pressure measurement module. • On board pressure sensor with 2PSI. 	03 Nos.
2	Strain Gauge Trainer, LVDT & Load Cell Development Work Bench Trainer System	<ul style="list-style-type: none"> • Strain Gause Module. • Load cell module. • Load cell with capacity of 10kg. • Load cell sensor. • Excitation voltage 9-12(DC). • Input resistance 400±10. • Output resistance 300±2. • Rated output(mv/v) 2±0.2. • Cable 4mm,0.42mtr. • LVDT Measurement Module. • System comes with AC-AC spring loaded 20mm LVDT PIC Microcontroller based system LCD 16*2 display unit to show LVDT output result. • Buzzer indicator for finding LVDT null point operational amplifier and signal conditioning circuit with test points.PIC18F452 with all support circuitery on board. • Output data on PC using USB based data acquisition system. 	03 Nos.
3	Proximity Trainer, Accelerometer Measurement	<ul style="list-style-type: none"> • Proximity module. • Platform to learn metal detecting facility using proximity metal detector. 	03 Nos.

	Ultrasonic Distance Development Work Bench Trainer System	<ul style="list-style-type: none"> • 12-volt DC motor mechanism to produce rpm. Rpm count display using LCD (16x2). • 2 push buttons to increase and decrease the speed of motor. 2 push buttons to change direction of motor. Start and stop button to make operation smooth. Sensor operates voltage +5 to +40 volts. Inductive sensor metal detection range 3mm to 4mm. • Accelerometer module. • Acceleration along X,Y,Z axis. High sensitivity of <u>800mV/g@1.5g.</u> • Ultrasonic module. • Range: 6 inches to 15 inches accuracy: 1 inch on board 5V supply 16x2 LCD display test points to study the voltage at the particular levels. Fault study available to study using toggle switches 15 inches scale for distance measurement concept study the trainer is based on the 8051 microcontroller with its basic circuitry. • Output data on PC using USB based data acquisition system. GUI for display voltage versus physical quantity. 	
4	Universal Transducer Development board	<ul style="list-style-type: none"> • On board: LVDT, Microphone, hall sensor, strain gauge, ultrasonic trans receiver, temp receiver (Lm35, NTC, thermocouple), humidity sensor, buzzer, voltmeter (0-20V) generate square wave of 5V with 555 timer. Light sensor: photo diode, photo transistor, photo voltaic cell, LDR. • Signal conditioning: instrumentation amplifier, class amplifier, differential amplifier. • Variable resistor: servo potentiometer, slide resistor, rotary resistor, wire wound resistor, carbon track resistor. • Bridge rectifier, filter, variable capacitor. • Accelerometer sensor. • USB PC interface software VI. • Aluminum frame packing. • 4x4 seven segment display. • Output data on PC using USB based data acquisition system. GUI for display voltage versus physical quantity. 	03 Nos.
5	Temperature Calibration and Measurement	<ul style="list-style-type: none"> • Reference pt100 thermo resistance with calibration certificate. • Industrial pt100 thermo resistance. • Two K-type thermo couples. • Gas thermometer. • Water bath tube temp. controlling knob 	02 Nos.

		<ul style="list-style-type: none"> calibrator unit. • Glass thermometer. • RTD sensor. • Thermo couple sensor. • Dewar flask. • PTC thermistor. • Inert gas thermometer. • Thermal bath of stainless steel equipped with stirrer. • Shielded heating element. • Safety level switch. • Dewar flask of stainless steel with high vacuum insulation, capacity of 1 liter. • Support for thermometers. • Reference pt100 thermo resistance with 3 points calibration certificate. • Different type of temperature sensor. • Industrial pt100 thermo resistance of class A. • K-type thermocouple. • Thermistor (PTC). • Liquid thermometer. • Gas thermometer. • Electric console with 20×4 LCD displays and controls. • Output data on PC using USB based data acquisition system. GUI for display voltage versus physical quantity. 	
6	Process Control Trainer	<ul style="list-style-type: none"> • LCD display 20×4 mm to display the flow rate ltr/sec, temp measurement. • On board socket for CRO. Facility for advance PLC, with display, for alarm setting etc. • Modbus, RS485 programming facility. • Facility to interface with NIDAQ and software. • Solid state relay for automation, trigger based control of motors, pumps and solenoid release valves etc... • Heating element rod to heat the water. • Temp measuring using thermocouple. 	02 Nos.
7	Torque and Angular Displacement Measurement system	<ul style="list-style-type: none"> • (1) sensor specifications. • Reaction torque sensor. • 5 kgm torque capacity. • Strain Gauge based. • Excitation voltage-10V DC. • Rated output 2mv/ V. • Sensor is sealed for IP 65-IP 67 degree of environmental class. • (2) digitizer – controller specifications. • Display: two-line alpha numeric LCD display with backlight. • Keypad: Soft touch key pad. 	02 Nos.

		<ul style="list-style-type: none"> • Readings: Torque value output in kgm. • Sensor input: Using DB9 connector. • Relay output: Two programmable set point with relay output. • Communication port: RS232/ RS485/USB output to transfer real time data. • Calibration: Software calibration. • Analog output: 0-10V or 4-20mA corresponding to torque. • Weight for torque: 500g X 2nos, 1kg X 3nos. • Power supply: 200V AC. • Serial cable/USB converter. • Analog output cable. • Operating manual. • Software CD. 	
8	Photoelectric, Magnetic and Photo Transducer Trainer	<ul style="list-style-type: none"> • On board analog voltmeter and Ammeter. • Block description printed on system. • Inbuilt power supply source, transducers, photoconductive cell (LDR). • Interfacing modules of photo-voltaic cell, photo transistor, LED, photo diode. • Light source-filament lamp with wooden mount base and scale for distance measurement (For LUX Measurement). • Signal conditioning potentiometers, output circuits interconnection – 2mm banana sockets. • On board amplifier- power amplifier circuit, current amplifier, DC amplifier, comparator, buffer, input circuits. • Rotary and slide potentiometer, output circuits, relay switch, buffer. • USB/PC interface/GUI display. • On board 7 segment display for RPM measurement. • Based on ATMEGA16 microcontroller • On board photo electric sensors for RPM count. • ON board relay (5V) with isolation circuit using with Optocoupler. • On board DC motor (5V) operated with driver circuits. • On board 4 seven segment display for RPM measurement. • On board relay (5V) with isolation circuit using with Optocoupler and function generator. • USB/PC interface/GUI display & re-programming facility. 	03 Nos.
9	Stepper and BLDC Motor Trainer	<ul style="list-style-type: none"> • Based on 8051 Microcontroller. • On board control for the speed of DC motor 	03 Nos.

		<p>through potentiometer.</p> <ul style="list-style-type: none"> • On board direction control switch. • 24V/40W DC BLDC motor with driver. • PWM Output for RPM measurement can be connected to CRO • User RPM Selection switches with power supply of 24VDC/2.5A • Microcontroller based operations facility to program hardware through RS232 OR USB • 2-Stepping motor • 2-phase HB type, unipolar operation, 0-2000 PPS • PWM constant current driver (Position control) and circular board operation (Angle control) • Ball screw distance: Over 200mm, 400/Rev; Built-in signal output terminal • Speed control by control S/W • Angle control by simulation S/W • 3-Manual control • Step/continuous operation by the values set manually • Direct/reverse rotation operation by the values set manually 	
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TECHNICAL BID- ANNEXURE "I"**PROCUREMENT OF EQUIPMENT FOR ELECTRICAL MEASUREMENTS LABORATORY
APPLICATION FORM (FOR PRE- QUALIFICATION)****BASIC TECHNICAL DETAILS OF THE BIDDER**

Sl. No.	Required Information	Bidders Response
1.	Name of Tendering Company / Firm/ Agency (Attach certificate of registration)	
2.	Full Address of Office with Telephone No. and FAX	
3.	E-Mail:	
4.	Classification of the bidder (a) Manufacturer (b) Authorized Agent (c) Authorized Dealer (d) Stockiest (e) others	
5.	Name of OEM (Original Equipment/Goods Manufacturer)	
6.	Authorization Certificate from Original Equipment Manufacturer (OEM) or their companion to quote/sell the Product, in case the Bidder is not the OEM. (Please Attach copy)	
7.	Name, address, designation, phone, cell number and E Mail address of the Contact Person.	----- ----- -----
8.	Details of Registration(Attach copy)	
9.	Details of Fee In favor of NIT Jamshedpur (Attach copy of proof)	EMD Fee : Rs. _____ through transaction UTR No. _____
10.	GST Registration No. (Attach copy)	
11.	Income Tax Registration No /PAN No. (Please Attach copy)	
12.	P.Os Copies having supplied similar equipment to Reputed institute like IISc,/ IITs,/ NITs, /Central Universities/ IISERs/ Govt. approved R & D laboratories/reputed organisation and any other centrally funded institutes of India of India. (Attach copy)	
13.	List of Customers with Contact details and preferably with the user certificates during last three years.	

	(Attach copy)	
14.	Annual Turnover of last three years (Attach copy)	
15.	Whether firm have certifications of ISO/ISI or other equivalent Certification? (Please Attach copy)	
16.	Copy of Brochure/Leaflets / Technical Information, including Make & Model, of the item(s) have must to be attached.	
17.	Organization/any of its subsidiaries is not blacklisted by any Academic Institutions/reputed organizations or institutions. (Attach declaration).	
18.	Agreed to provide comprehensive Warranty as specified in Tender?	
19.	Whether firm agrees to give security deposit/Performance Bank Guarantee against warranty obligations?	
20.	Whether quoted item confirms the specification of as specified or better?	
21.	Is bid valid for 180 days/or as specified?	
22.	Agreed to supply within delivery period as specified?	
23.	Payment Terms agreed as Specified?	
24.	Place of Delivery as specified?	
25.	Address of Service Center/Agent nearest to NIT Jamshedpur (Attach Copy)	
26.	Details of Bank	Name of Bank: _____ Account No. : _____ IFSC Code : _____ MICR Code : _____
27.	Whether Firm agrees to abide by the terms and conditions of the tender document? In the event of award of the contract?	
28.	Is Bid document duly signed?	

Signature of Bidder/authorized person)

Full Name of Signatory: _____

Designation of Signatory: _____

Place: _____

Place: _____

with Seal of the company/firm

CONTRACT FORM

(Declaration should provide on printed letter head of the Bidder)

DECLARATION

To,
Registrar
National Institute of Technology
Jamshedpur - 831014

Sir,

Sub: Declaration against **PROCUREMENT OF EQUIPMENT FOR ELECTRICAL MEASUREMENTS LABORATORY**

1. Having examined the details of Tender document, I / We hereby submit the prequalification documents and other relevant information.
2. It is also confirmed that I/We will abide by all the Terms & condition of aforesaid tender notice and we do not have any counter conditions.
3. I/We hereby certify that all the statements made and information supplied in the statements are true and correct to the best of my knowledge. I understand that if any information found incorrect, the application is liable to be cancelled.
4. I/We have furnished all information and details necessary for pre-qualification and have no further pertinent information to supply.
5. I/We certify that my firm or any of its subsidiaries have not been blacklisted by any Govt. / Autonomous bodies / Universities / Govt. Institutes from business.
6. I/We hereby accept the rules and procedures of the Institute for pre-qualification of contractor and agree that the Institute has the right to accept or reject any application without assigning a reason thereto.
7. I/We have not tampered/modified the tender forms in any manner. In case, if the same is found to be tampered/modified, I/we understand that my/our tender will be summarily rejected and I/we am/are liable to be banned from doing business with National Institute of Technology, Jamshedpur and /or prosecuted.

(Signature of authorized person)

Full Name of Signatory: _____

Designation of Signatory: _____

with Seal of the company/firm

Place: _____

Date _____

ANNEXURE "IV"**MANDATORY COMPLIANCE REPORT-I****PROCUREMENT OF EQUIPMENT FOR ELECTRICAL MEASUREMENTS LABORATORY**

Sl. No.	Details	Yes / No	Document Attachment Page Sl. No.
1.	We have gone through the terms & conditions of the tender document and agreed to abide by the same.		
2.	Bidder is registered Firm with proof of document?		
3.	Prescribed filled up application for pre-qualification, formats and requisite documents are attached?		
4.	Proof of EMD through NEFT /RTGS in favour of National Institute of Technology, NIT Jamshedpur is attached.		
5.	Manufacturer/Sole Distributor/Authorised Dealer/ Registered Supplier with proof of document attached?		
6.	GST Registration Number copy attached?		
7.	PAN (Income Tax) Registration Certificate attached?		
8.	P.Os Copies having supplied similar equipment to Reputed institute like IISc,/ IITs,/ NITs, /Central Universities/ IISERs/ Govt. approved R & D laboratories/reputed organisation and any other centrally funded institutes of India, with proof of document attached ?		
9.	List of Customers with Contact details and preferably with the user certificates during last three years with proof of document attached?		
10.	Annual Turnover of last three years as specified with proof of document. Attached.		
11.	Certificate ISO/ISI or equivalent in terms of quality of product and Manufacturer with proof of document attached?		
12.	Brochure/Leaflets / Technical Information / Picture including Make & Model, of the quoted item(s) attached?		
13.	Declaration attached as per Annexure in regard to non-blacklisted of manufacturer or any of its subsidiaries by any Govt. / Autonomous bodies / Universities / Govt. Institutes?		
14.	Agreed to provide comprehensive Warranty as specified in Tender document?		
15.	Agreed to provide performance security against warranty obligations as specified?		
16.	Whether quoted item confirms the specification as specified or better?		
17.	Is Bid document duly signed?		
18.	Validity of the bid as specified?		
19.	Delivery Period as specified?		
20.	Payment Terms agreed as Specified?		
21.	Place of delivery as specified?		
22.	Name and Address of nearest service Centre from NIT Jamshedpur ?		

(Signature of Bidder/authorized person)

Seal of the company/Firm

Place: _____

Date _____

MANDATORY COMPLIANCE REPORT-II**PROCUREMENT OF EQUIPMENT FOR ELECTRICAL MEASUREMENTS LABORATORY**

S.No	Name of the Equipment	Specifications	Yes/No
1	Temperature, Humidity & Pressure development Work bench Trainer system	<ul style="list-style-type: none"> • Temperature Module. • Operational amplifier and signal conditioning circuit to compulsive output inbuilt ADC conversion.LCD 16*2 display to observe temperature of different temperature sensors. • ON board programming facility of PIC18F452 • Humidity module. • Linear dc output voltage for 0-100% RH on board SYH-2/SYWH-2 Sensor. • Wide temp. compensation range, microcontroller 8051 based humidity control system. • 16*2 LCD display unit show output system comes with user manual, connecting cables and power supply. • Pressure measurement module. • On board pressure sensor with 2PSI. 	
2	Strain Gauge Trainer, LVDT & Load Cell Development Work Bench Trainer System	<ul style="list-style-type: none"> • Strain Gauge Module. • Load cell module. • Load cell with capacity of 10kg. • Load cell sensor. • Excitation voltage 9-12(DC). • Input resistance 400±10. • Output resistance 300±2. • Rated output(mv/v) 2±0.2. • Cable 4mm,0.42mtr. • LVDT Measurement Module. • System comes with AC-AC spring loaded 20mm LVDT PIC Microcontroller based system LCD 16*2 display unit to show LVDT output result. • Buzzer indicator for finding LVDT null point operational amplifier and signal conditioning circuit with test points.PIC18F452 with all support circuitry on board. • Output data on PC using USB based data acquisition system. 	
3	Proximity Trainer, Accelerometer Measurement Ultrasonic Distance Development Work Bench Trainer System	<ul style="list-style-type: none"> • Proximity module. • Platform to learn metal detecting facility using proximity metal detector. • 12-volt DC motor mechanism to produce rpm. Rpm count display using LCD (16×2). • 2 push buttons to increase and decrease the speed of motor. 2 push buttons to change 	

		<p>direction of motor. Start and stop button to make operation smooth. Sensor operates voltage +5 to +40 volts. Inductive sensor metal detection range 3mm to 4mm.</p> <ul style="list-style-type: none"> • Accelerometer module. • Acceleration along X,Y,Z axis. High sensitivity of <u>800mV/g@1.5g.</u> • Ultrasonic module. • Range: 6 inches to 15 inches accuracy: 1 inch on board 5V supply 16x2 LCD display test points to study the voltage at the particular levels. Fault study available to study using toggle switches 15 inches scale for distance measurement concept study the trainer is based on the 8051 microcontroller with its basic circuitry. • Output data on PC using USB based data acquisition system. GUI for display voltage versus physical quantity. 	
4	Universal Transducer Development board	<ul style="list-style-type: none"> • On board: LVDT, Microphone, hall sensor, strain gauge, ultrasonic trans receiver, temp receiver (Lm35, NTC, thermocouple), humidity sensor, buzzer, voltmeter (0-20V) generate square wave of 5V with 555 timer. Light sensor: photo diode, photo transistor, photo voltaic cell, LDR. • Signal conditioning: instrumentation amplifier, class amplifier, differential amplifier. • Variable resistor: servo potentiometer, slide resistor, rotary resistor, wire wound resistor, carbon track resistor. • Bridge rectifier, filter, variable capacitor. • Accelerometer sensor. • USB PC interface software VI. • Aluminum frame packing. • 4x4 seven segment display. • Output data on PC using USB based data acquisition system. GUI for display voltage versus physical quantity. 	
5	Temperature Calibration and Measurement	<ul style="list-style-type: none"> • Reference pt100 thermo resistance with calibration certificate. • Industrial pt100 thermo resistance. • Two K-type thermo couples. • Gas thermometer. • Water bath tube temp. controlling knob calibrator unit. • Glass thermometer. • RTD sensor. • Thermo couple sensor. • Dewar flask. 	

		<ul style="list-style-type: none"> • PTC thermistor. • Inert gas thermometer. • Thermal bath of stainless steel equipped with stirrer. • Shielded heating element. • Safety level switch. • Dewar flask of stainless steel with high vacuum insulation, capacity of 1 liter. • Support for thermometers. • Reference pt100 thermo resistance with 3 points calibration certificate. • Different type of temperature sensor. • Industrial pt100 thermo resistance of class A. • K-type thermocouple. • Thermistor (PTC). • Liquid thermometer. • Gas thermometer. • Electric console with 20×4 LCD displays and controls. • Output data on PC using USB based data acquisition system. GUI for display voltage versus physical quantity. 	
6	Process Control Trainer	<ul style="list-style-type: none"> • LCD display 20×4 mm to display the flow rate ltr/sec, temp measurement. • On board socket for CRO. Facility for advance PLC, with display, for alarm setting etc. • Modbus, RS485 programming facility. • Facility to interface with NIDAQ and software. • Solid state relay for automation, trigger based control of motors, pumps and solenoid release valves etc... • Heating element rod to heat the water. • Temp measuring using thermocouple. 	
7	Torque and Angular Displacement Measurement system	<ul style="list-style-type: none"> • (1) sensor specifications. • Reaction torque sensor. • 5 kgm torque capacity. • Strain Gauge based. • Excitation voltage-10V DC. • Rated output 2mv/ V. • Sensor is sealed for IP 65-IP 67 degree of environmental class. • (2) digitizer – controller specifications. • Display: two-line alpha numeric LCD display with backlight. • Keypad: Soft touch key pad. • Readings: Torque value output in kgm. • Sensor input: Using DB9 connector. • Relay output: Two programmable set point with relay output. • Communication port: RS232/ RS485/USB 	

		<p>output to transfer real time data.</p> <ul style="list-style-type: none"> • Calibration: Software calibration. • Analog output: 0-10V or 4-20mA corresponding to torque. • Weight for torque: 500g X 2nos, 1kg X 3nos. • Power supply: 200V AC. • Serial cable/USB converter. • Analog output cable. • Operating manual. • Software CD. 	
8	Photoelectric, Magnetic and Photo Transducer Trainer	<ul style="list-style-type: none"> • On board analog voltmeter and Ammeter. • Block description printed on system. • Inbuilt power supply source, transducers, photoconductive cell (LDR). • Interfacing modules of photo-voltaic cell, photo transistor, LED, photo diode. • Light source-filament lamp with wooden mount base and scale for distance measurement (For LUX Measurement). • Signal conditioning potentiometers, output circuits interconnection – 2mm banana sockets. • On board amplifier- power amplifier circuit, current amplifier, DC amplifier, comparator, buffer, input circuits. • Rotary and slide potentiometer, output circuits, relay switch, buffer. • USB/PC interface/GUI display. • On board 7 segment display for RPM measurement. • Based on ATMEGA16 microcontroller • On board photo electric sensors for RPM count. • ON board relay (5V) with isolation circuit using with Optocoupler. • On board DC motor (5V) operated with driver circuits. • On board 4 seven segment display for RPM measurement. • On board relay (5V) with isolation circuit using with Optocoupler and function generator. • USB/PC interface/GUI display & re-programming facility. 	
9	Stepper and BLDC Motor Trainer	<ul style="list-style-type: none"> • Based on 8051 Microcontroller. • On board control for the speed of DC motor through potentiometer. • On board direction control switch. • 24V/40W DC BLDC motor with driver. • PWM Output for RPM measurement can be connected to CRO • User RPM Selection switches with power 	

		<p>supply of 24VDC/2.5A</p> <ul style="list-style-type: none"> • Microcontroller based operations facility to program hardware through RS232 OR USB • 2-Stepping motor • 2-phase HB type, unipolar operation, 0-2000 PPS • PWM constant current driver (Position control) and circular board operation (Angle control) • Ball screw distance: Over 200mm, 400/Rev; Built-in signal output terminal • Speed control by control S/W • Angle control by simulation S/W • 3-Manual control • Step/continuous operation by the values set manually • Direct/reverse rotation operation by the values set manually 	
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Place: _____
Date _____

(Signature of Bidder/authorized person)
Seal of the company/Firm

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 in envelope 1 as single PDF file)			
Sl. No.	Document	Content	File Type
1.	Technical Bid	Basic Technical Details Of Bidder as per Annexure-I	PDF
2.		Declaration sheet as per Annexure- II	PDF
3.		Compliance Report as per Annexure – IV	PDF
4.		Technical supporting documents in support of all claims made in tender document and Annexure-I to Annexure-V	PDF
Envelope – 2			
Sl. No.	Document	Content	File Type
1.	Financial Bid (BOQ)	Price bid should be submitted in XLS(xls) format as per Annexure-III	XIS (xls)