

# **TENDER DOCUMENT**

## **(Advt. No. 11/2017-18)**



**ELECTRICAL ENGINEERING DEPARTMENT**

**NATIONAL INSTITUTE OF TECHNICAL TEACHERS' TRAINING AND RESEARCH, KOLKATA**  
**Block-FC, Sector-III, Salt Lake City, Kolkata- 7000 106**



**NATIONAL INSTITUTE OF TECHNICAL TEACHERS'  
TRAINING AND RESEARCH, KOLKATA**

(Under Ministry of HRD, Govt. of India)

BLOCK-FC, SECTOR-III, SALT LAKE CITY, KOLKATA - 700 106

Website: <http://www.nitttrkol.ac.in>, Phone: 033 2337 0479/4125

TENDER NOTICE

Sealed tenders are invited from manufacturers / bonafide suppliers / authorized dealers of Equipment for **(a) Control Laboratory, (b) Electrical Machine Laboratory of Electrical Engineering Department**. Tender Document (TD) is obtainable from Accounts Section or website or CPPP from **08/01/2018 to 29/01/2018**. The cost of downloaded TD, Rs. 500/- and EMD @ 4% on Estimated Price (under each Lab) are payable through separate DD i/f/o **Director, NITTTR, Kolkata**. The last date of submitting TD is **29/01/2018 upto 3 pm**. Tender will be opened at **4 pm** on the same date.

Advt. No. 11/2017-18

Director

To,

M/s. \_\_\_\_\_  
\_\_\_\_\_

**Sub : Invitation of quotations for supply of various Equipment in Electrical Engineering Department for**  
**(a) Control Laboratory**  
**(b) Electrical Machine Laboratory**

Dear Sir,

Sealed tenders are invited from the bonafide suppliers / manufacturers / authorized dealers for supply of various equipment whose specifications are stated below: -

**Total estimated price for all Equipment under (a) and (b) : Rs. 52,30,000/-**  
**(a) Equipment for “Control Laboratory” :**

**Estimated Price of the Item stated below : Rs. 16,30,000/-**

**1) Advanced Control Education Kit MicroLab Box of dSPACE 1 Unit**

(ACE\_MLBX\_1302T) consisting of DS1202 PowerPC Dual Core 2 GHz processor board and DS1302 I/O board, top panel, carrier bag, CDP-MP Control Development Software Package, RTI\_EMCS\_BS & MLBX GNU Compiler with USB dongle.

**(b) Equipment for “Electrical Machine Laboratory” :**

**Estimated Price of three Items stated below : Rs. 36,00,000/-**

**1) Vector Controlled AC Drives LAB 1 Unit**

Technical Specifications:

- Aluminum profile sturdy Modular flat demo panel system (table top), carrying various high voltage components housed in plastic enclosures (panel) to minimize shock possibility.
- 1 Motor, Alternator & Sync. Motor Panel:  
1 MCBs of 4A/1.6A - 2nos, bulb load.
- Integrated AC (1 phase) measurement panel:  
1 nos of Digital meter for 1 ph. parameters V, I, PF, W, VA, VAR, Hz, etc.  
Current specs = 1A/5A for 1ph. meter (170-250V).
- AC voltmeter panel:  
Voltage range : 500V.  
1 pole 4 way switch to select line voltage for three phase
- Dual range AC ammeter panel:  
Current range:2A/6A selectable .  
1 pole 7 way switch to select phase current for three phase
- IGBT Controlled AC Drive panel:  
Input voltage: 230VAC. 50Hz  
Output voltage: 3 phase 200 to 230VAC  
Range (Frequency Control) : 0.1 Hz to 100 (400)Hz  
Control Mode :Sine Wave PWM  
Capacity : 2 HP  
With Reverse And Forward Direction

Mech: double length for 2HP

- Motor specifications:  
3 phase squirrel cage induction motor, 2 HP, 4 pole, 1500RPM, 6 terminal (delta 220Vac/star 440Vac) motor with Hand held Tachometer for speed measurement
- Optional accessories:  
Eddy brake for loading with the panels EMT 8 + EMT9 + EMT 6B for DC measurement, Torque & Speed measurement
- Accessories:  
Hand held digital tachometer

## 2) Brushless DC Drives

**1 Unit**

- Powder coated sturdy Aluminum flat panel (table top) system, carrying various Voltage components housed in plastic enclosures (panel).
- Instrumentation Power supply cum Multichannel DPM panel  
+5V, 300mA  
Multi channel DPM for digital display for speed
- Brushless DC motor -1 panel  
24VDC/3A power supply for BLDC motor  
Speed display DPM
- Brushless DC motor -2 panel  
BLDC controller circuit.  
Tacho output
- Brushless DC motor -3 panel  
Forward/reverse switch.  
Brake switch  
Test points for PWM outputs, Tacho output.  
Speed control Port.
- Brushless DC motor -4 panel  
Voltmeter : 0-30VDC  
Ammeter : 0-10ADC  
Circuit Breaker
- Brushless DC motor -4 panel  
Voltage: 24VDC  
Wattage:200W  
Max Speed: 2500RPM.  
Frame: 34, panel mounted  
Bidirectional  
Braking system  
Chassis mounted provided with spring balance loading arrangement.

## 3) DFIG-Induction Generator Setup

**1 Unit**

Doubly Fed Induction Generator Setup shall consists of following:

- Input 3 phase DOL Starter panel  
4 pole MCB of 415V/4A.  
DOL 16A Contactor with 24DCV / 11VA COIL  
Settable thermal O/L relay with range 1.4A (2.4A)

RYB inputs indicators.

Manual start / stop with local trip contact

Power ON LED indicator

- Instrumentation power supply cum multichannel DPM panel  
Power supply +12V, -12V, 500 mA, +5V/300mA  
Unregulated 17VDC /750 mA  
line synchronizing signal.  
Multi channel DPM for digital display of torque & speed.
- Variable AC and DC supply panel  
Input 0-230VAC, 50Hz  
Variable O/P AC: 0-270V/3A (6A)  
Variable O/P DC: 0-250V/3A (6A)
- 3 Phase Bidirectional Power cum Energy meter panel  
Bidirectional Multifunction  
3 phase 3/4 wire, 415VAC, CT Input 5A  
LCD/LED display, Aux. supply 230V, 45-65Hz,5W  
Measure V. I., Hz, Pf, KVA, KW, KWH  
Optionally modbus RTU RS 485 for RTU/SCADA interface.
- Synchronization Panel  
Consisting of synchronization digital meter (Synchroscope)  
Manual Synchronization switch.  
15W lamps X 6 nos.  
Manual start / stop with local trip contact
- DC Voltmeter & DC Ammeter Panel  
DC voltmeter: 0-300VDC  
DC ammeter: 5A (20A)  
4A (12A) circuit breaker.
- 8 nos of IGBT Power ckt & sensing panel  
1200V/40A IGBT with opto isolated (LV) TTL compatible driver circuit & individual heat sink with built in isolated DC power supply for gate drive - 8 nos.  
2 nos of push buttons to increment/decrement frequency  
Forced air cooling fans 2 nos  
1000µf/250V electrolytic capacitor paralleled with 2.2µf/400V film capacitor for DC...  
smoothing & to dampen surge  
Test points are provided to observe gate signals
- FPGA based controller panel.  
16MHz crystal operated multi-output clock source to operate various resources on Mother Board like CPU, Baud rate, T/C etc.  
6 LVTTTL gate drive outputs to and 6 status feedback inputs from 6 nos IGBT power modules through 26 pin FRC cable.  
16X2 LCD display to observe VFD frequency  
8 nos of LEDs to indicate IGBT faults
- SCR Actuator (variable DC) cum sensor signal conditioning panel  
Thyristor rating: 10A (25A)  
Full bridge SCR based 0V-220V / 3A (10A) cosine firing with linear characteristics.  
Supports signal conditioning circuit for speed, torque in kg to give output 0-2.5Vdc (FS).  
External control signal (0 - 2.5VDC) to set O/P volt (0-100VDC) to control inverter input voltage.

- LC filter panel.  
Inductors (0.15H-2.5/5A) X 3 nos.  
Capacitors (100µf/440Vac) X 3 nos.
- Single phase supply panel  
Single phase MCBs of 4A/20A 1each  
Lamp load
- Resistor Load panel  
AC Resistors = 10K/5K/3.5K/2.5K/2K/1.5K/200WX3 phases/ 6 taps  
DC Resistors = 750E/600E/300E/212E/162E/125E/112E/100E/400W / 6 taps+OFF+ separate 60E tap for DC series Gen.
- Resistor Load panel  
3 nos of 600W resistors with switch selectable 6 nos of taps at 100, 112, 150, 175, 200,225 & 265 fix

#### **Terms & Conditions:**

1. The tenderer(s) shall be either manufacturer of base machine / equipment / tool or an authorized business partner / marketing agent / service agent / reseller etc. of the OEM. In case of authorized business partner / marketing agent / service agent /reseller etc. authorization certificate shall be attached along with the tender. *It is expected that the tenderer(s) should quote product of renowned company with global presence and acceptance.*
2. Tenderer(s) must quote all items of Lab (a) and (b) separately.
3. The quoted items shall be as per the specifications. The rate quoted must be F.O.R. NITTTR, KOLKATA inclusive of packing, forwarding, supply, installation, testing, commissioning and handed over in good working condition to the NITTTR, Authority. GST, surcharge and insurance, if any must be indicated separately. Educational discount, shall be indicated clearly. For imported items, Custom duty shall be indicated separately. The institute will provide the necessary documents for Excise and Custom duty exemption on selected items while placing the purchase order.
  - 3.1 GST must be quoted in the tender, wherever applicable.
  - 3.2 All legal disputes shall be under the jurisdiction of the Kolkata Courts in the state of West Bengal.
4. **Earnest Money Deposit (EMD):**
  - 4.1 EMD at the rate of 4% of the estimated price (under each Lab) in the form of Crossed Account payee demand draft, fixed deposit receipt from commercial bank or Bank guarantee from a commercial bank drawn in favour of Director, NATIONAL INSTITUTE OF TECHNICAL TEACHERS' TRAINING AND RESEARCH, KOLKATA on any scheduled bank at Kolkata shall be submitted along with the Tender in a separate envelope marked as EMD. Tender without earnest money deposit shall be **OUTRIGHTLY REJECTED**. A model format of bank guarantee for furnishing EMD is enclosed in Annexure- A.
  - 4.2 Forfeiture of EMD: EMD of a tenderer will be forfeited if the tenderer withdraws or amends its tender or impairs or derogates from the tender in any respect within the period of validity of its tender. Further, if the successful tenderer fails to furnish the required performance security within the specified period, its EMD will be forfeited.
  - 4.3 Refund of EMD: EMD furnished by all unsuccessful tenderers should be returned to them without any interest whatsoever, at the earliest after expiry of the final tender validity period but not later than 30 days after conclusion of the contract. EMD of the successful tenderer should be returned, without any interest whatsoever, after receipt of performance security from it as called for in the contract.
  - 4.4 Exemption from payment of Earnest Money should be claimed with scanned copies of required documents to substantiate the claim towards their credentials along with the tender.

5. **Each bidder shall submit only one tender.**

6. **Validity of Tender:**

Tender shall remain valid for a period not less than 6 months after the deadline date specified for submission.

7. **Delivery Period:**

Delivery period shall be maximum 45 days from the day of receipt of award of contract.

8. **Evaluation of Tender:**

NITTTR, KOLKATA will evaluate and compare the tenders determined to be substantially responsive i.e., which are

8.1 properly signed; and

8.2 conform to the technical specifications and terms and conditions

8.3 The tender would be evaluated on total cost basis for all items of Laboratory (a) and (b) separately.

9. **Submission of Documents**

The tender should inter alia include the following:

9.1 Copy of current GST Return.

9.2 Copy of Income Tax acknowledgement for the financial year 2016-17.

9.3 Copy of Valid Trade License.

9.4 Copy of current exercise duty Clearance Certificate.

9.5 Copy of current custom duty clearance certificate.

9.6 Copy of valid registration certificate of SSI Unit if any.

9.7 The Tenderer(s) should be required to furnish a list of clients serviced during the last 3 years (2014-15 to 2016-17).

9.8 The tenderer(s) shall submit a list of projects/supply handled in the last 3 years (2014-15 to 2016-17).

9.9 The tenderer(s) shall furnish the Audited statement of Accounts for last 3 years (2014-15 to 2016-17).

9.10 **All documents related to a single Laboratory among 2 Laboratories must be submitted along with “EMD and cost of TD, Rs.500/- in two separate DD” in a sealed envelope. The envelope must be super-scribed with “Quotation for Laboratory (a) or (b) under Tender Advt. No. 11/2017-18 of Electrical Engineering Department”.**

10. **Bid Price:**

While furnishing the quoted price, the tenderer(s) may note the following:

10.1 The tenderer(s) is/are required to quote the item for (a) Equipment for “Control Laboratory”. Corrections, if any in quoted price, shall be made by crossing out, initialing, dating and rewriting.

10.2 The tenderer(s) is/are required to quote all the 3 items for (b) Electrical Machine Laboratory. Inability to quote all the 3 items shall liable to reject that offer. Corrections, if any in quoted price, shall be made by crossing out, initialing, dating and rewriting.

10.3 All duties, taxes and other levies payable by the contractor under the contract shall be included in the total price and Taxes should be quoted separately.

10.4 The rates quoted by the bidder shall be fixed for the duration of the contract and shall not be subject to adjustment on any account.

10.5 The prices should be quoted in Indian Rupees only.

10.6 The rate quoted must be both in words and figures.

11. **Award of Contract:**

The NITTTR, KOLKATA will award the contract to the bidder whose tender has been determined to be substantially responsive in terms of technical specifications, terms & conditions and price quoted.

*11.1* Notwithstanding the above, NITTTR, KOLKATA reserves the right to accept or reject any tenderer(s) and to cancel the bidding process and reject all tenderer(s) at any time prior to the award of contract.

*11.2* The bidder whose bid is accepted will be notified of the award of contract by the NITTTR, KOLKATA prior to expiration of the tenderer(s) validity period.

12. **Performance Security:**

*12.1* Performance security at the rate of 8% of the contract value in the form of account payee demand draft, fixed deposit receipt from commercial bank or Bank guarantee from a commercial bank in favour of Director, NITTTR, Kolkata shall be submitted within 21 days after the notification of the award of contract. Performance security should remain valid for a period of sixty days beyond the date of completion of all contractual obligations of the supplier, including warranty obligations. A model format of Bank guarantee for providing performance security is enclosed at Annexure – B

*12.2* Forfeiture of Performance Security: Performance security is to be forfeited and credited to the Institute Account in the event of a breach of contract by the supplier, in terms of the relevant contract.

*12.3* Refund of Performance security: Performance security should be refunded to the supplier without any interest, whatsoever, after it duly performs and completes the contract in all respects but not later than 60 days of completion of all such obligations under the contract.

*12.4* Liquidated Damages will become payable in case of delay in delivery.

*12.5* In case of delay in supply on part of supplier, a penalty @ 0.5% per week of order value will be charged for delayed period subject to a maximum of 10% of the order value.

*12.6* The same rate of penalty shall be applicable for late installation of the equipment also.

13. **Payment:**

Payment will be made after delivery & satisfactory commissioning of the goods / services and training of personnel.

14. **Normal Commercial Warranty/ Guarantee:**

Normal commercial warranty/ guarantee of three years shall be applicable to the supplied goods/ services and this should be specified clearly by the bidder.

15. **Live Demonstration:**

Live demonstration of the item(s) shall be arranged by the vendors at their cost, if asked by the Institute.

16. Points which are not explicitly covered under “**terms and conditions**” above shall be covered by Manual on Policies and Procedures for Purchase of Goods circulated by Ministry of MHRD, Govt. of India. A copy of the same is available in the office of the Department of Electrical Engineering for perusal of the tenderers.

17. In case of any deviations of the terms and conditions of this contract after award of contract, the Director, NITTTR, Kolkata shall have the right to cancel the contract at his / her discretion.



**You are requested to provide your offer as per schedule provided in Notice Inviting Tender in the sealed envelope super-scribing “quotation for Laboratory (a) or (b) under Tender Advt. No. 11/2017-18 of Electrical Engineering Department”**

To,  
Director,  
National Institute of Technical Teachers’ Training and Research, Kolkata  
Block – FC, Sector – III, Salt Lake City, Kolkata – 700 106  
Tel. No. +91(033) 2337-0479/4125

**ANNEXURE - A**

**MODEL BANK GUARANTEE FORMAT FOR FURNISHING EMD**

Whereas .....  
(hereinafter called the "tenderer")..... has submitted their offer dated .....  
for the supply of.....  
.....(hereinafter called the "tender")..... against the purchaser's  
tender enquiry No. .... KNOW ALL MEN by these presents that WE  
..... of .....having our  
registered office at .....are bound unto.....  
(hereinafter called the "Purchaser") ..... in the sum of .....  
..... for which payment will and truly to be made  
to the said Purchaser, the Bank binds itself, its successors and assigns by these presents. Sealed with the  
Common Seal of the said Bank this .....day of .....20.....

**THE CONDITIONS OF THIS OBLIGATION ARE:**

- (1) If the tenderer withdraws or amends, impairs or derogates from the tender in any respect within the period of validity of this tender.
- (2) If the tenderer having been notified of the acceptance of his tender by the Purchaser during the period of its validity:-
  - a) If the tenderer fails to furnish the Performance Security for the due performance of the contract.
  - b) Fails or refuses to accept/execute the contract.

WE undertake to pay the Purchaser up to the above amount upon receipt of its first written demand, without the Purchaser having to substantiate its demand, provided that in its demand the Purchaser will note that the amount claimed by it is due to it owing to the occurrence of one or both the two conditions, specifying the occurred condition or conditions.

This guarantee will remain in force upto and including 45 days after the period of tender validity and any demand in respect thereof should reach the Bank not later than the above date.

(Signature of the authorized officer of the Bank)

Name and designation of the officer

Seal, name & address of the Bank and address of the Branch

**ANNEXURE - B**

**MODEL BANK GUARANTEE FORMAT FOR PERFORMANCE SECURITY**

To  
The Director,  
NITTTR, Kolkata

WHEREAS .....  
(name and address of the supplier) (hereinafter called "the supplier") has undertaken, in pursuance of contract no ..... dated ..... to supply (description of goods and services) (herein after called "the contract").

AND WHEREAS it has been stipulated by you in the said contract that the supplier shall furnish you with a bank guarantee by a scheduled commercial recognized by you for the sum specified therein as security for compliance with its obligations in accordance with the contract;

AND WHEREAS we have agreed to give the supplier such a bank guarantee;

NOW THEREFORE we hereby, affirm that we are guarantors and responsible to you, on behalf of the supplier, up to a total of ..... (amount of the guarantee in words and figures), and we undertake to pay you, upon your first written demand declaring the supplier to be in default under the contract and without cavil or argument, any sum or sums within the limits of (amount of guarantee) as aforesaid, without your needing to prove or to show grounds or reasons for your demand or the sum specified therein.

We hereby waive the necessity of your demanding the said debt from the supplier before presenting us with the demand.

We further agree that no change or addition to or other modification of the terms of the contract to be performed there under or of any of the contract documents which may be made between you and the supplier shall in any way release us from any liability under this guarantee and we hereby waive notice of any such change, addition or modification.

This guarantee shall be valid until the ..... day of ....., 20

(Signature of the authorized officer of the Bank)

Name and designation of the officer

Seal, name & address of the Bank and address of the Branch