



**NATIONAL INSTITUTE OF TECHNOLOGY
RAIPUR – 492 010, CHHATTISGARH**

**Advertised (Open) Tender Enquiry for Purchase of Lab Equipments for
Electronics & Telecommunication Department**

Department: Electronics & Telecommunication

Enquiry No: NITRR/Central Store/ET/OT/2016/2327

Date: 07/12/2016

Important Dates

To

Event	Date	Time
Last Date of submission of quotation	03/01/2017	Up to 03:00
Technical bid Opening date	03/01/2017	At 03:30
Price (financial) bid Opening	To be informed to technically successful bidder by mail and phone.	

Dear Sir,

We intend to purchase the commodities specified in this document and invite quotations in accordance with the terms and conditions detailed in the bid document. If you are interested, kindly send your offer with prices and complete terms within the time mentioned above.

Please send your quotation to:

REGISTRAR
NATIONAL INSTITUTE OF TECHNOLOGY RAIPUR
G. E. ROAD, RAIPUR – 492 010, CHHATTISGARH

Yours sincerely,

Registrar

National Institute of Technology,
Raipur

Enclosed:

- (1) Bid Document - Instruction to bidder - containing detail terms and conditions.
- (2) List of Equipment's/machines/commodity etc.- Annexure 1
- (3) Technical Specification – Annexure 2
- (4) Technical Compliance Format- Annexure 3
- (5) Price Bid Format in INR – Annexure 4
- (6) Price Bid Format in of imported items in currency other than INR -Annexure 5
- (7) Deviation statement form - Annexure 6
- (8) Bidder information & check list- Annexure 7

BID DOCUMENT

INSTRUCTION TO BIDDER

1. Please go through the enclosed "bid document" carefully for other bidding instructions.
2. **IMPORTANT NOTE:** Being a Two-Part Tender (techno-commercial and price bid), fax quotations will not be accepted. Please ensure your offers are received on or before tender due date and time. Bidder/ Tenderer are requested to download the tender documents from our website (www.nitr.ac.in) and please submit the Demand Draft of Rs. 1000/- towards Tender fee not refundable (in favor of Director NIT Raipur, Demand Draft should not be dated prior to the date of advertisement. Separate request letter and separate Demand Draft shall be sent for each tender document.) in a separate cover along with a covering letter duly marked on the cover "Tender fee in respect of Tender No". please note carefully that;
 - **Quotations received without tender fee will not be considered.**
 - No request for extension of the due tender date will be considered.
 - In the event any date indicated above is declared as holiday, the next working day at Institute shall be considered as the due date for receiving & opening of tenders.
 - The bids shall be opened on date and time as mentioned above. The bidders may send their authorized representatives to attend the bid opening, if they so desire.
 - Bids received after the deadline of receipt indicated above, shall not be taken in to consideration.
3. The bid should remain valid for a period of **180 days** from the date of opening. In case your offer has a different validity period that should be clearly mentioned in the quotation. Validity period may also be extended without change in bid prices ,if required on mutually agreed basis only.
4. The bids may be drop in the Tender Box kept in the office of Registrar, NIT Raipur in normal working day that is Monday to Friday except holidays (from 11 AM to 5 PM) of the Institute. Please do not hand over the quotation to any person by hand.
Speed post/Registered Post and Other Courier Services is not acceptable.

5. **Clarification of bidding documents:** If a prospective bidder requires any clarification in regard to the bidding documents, they may mail to asstreg.str@nitr.ac.in at least 15 days before the deadline for receipt of bids.

6. Amendment of Bidding Documents

- o Corrigendum, if issued any for the tender, shall form part of the Tender Document. Corrigendum will be posted on NIT RAIPUR website (www.nitr.ac.in). Bidders/Tenderers are requested to visit NIT RAIPUR website regularly and note the corrigendum / amendments to the tender without fail and submit the offer accordingly. NIT RAIPUR will not be responsible for ignorance of corrigendum.
- o At any time prior to the deadline for submission of bids, the Institute may, for any reason, whether at its own initiative or in response to a clarification requested by a prospective Bidder/Tenderer, modify the bidding documents by amendment. The same would also be hosted on the website of the Institute and all prospective bidders/tenderer are expected to surf the website before submitting their bids to take cognizance of the amendments. Bidder/Tenderer who has submitted bids before publishing the amendment may revise their bid incorporating the amendments before the last date of tender.
- o In order to allow prospective Bidder/Tenderer's reasonable time in which to take the amendment into account in preparing their bids, the Institute, at its discretion, may extend the deadline for the submission of bids and host the changes on the website of the Institute.

- 7. **Excise Duty/Custom duty:** The NIT Raipur have Excise Duty/Custom duty exemption certificate.
- 8. **VAT/CST:** The Institute is not authorized to give C or D form. CST or VAT should be charged according to applicable rates.
- 9. **Entry Tax:** The State of Chhattisgarh may charges entry tax on all goods entering the State. Please include it in your quotation as a separate item. Entry Tax will be reimbursed on production of proof of payment.

10. Bid Security (BS)/(Earnest Money/ EMD)

- I. The Bidder/Tenderer shall furnish, as part of its bid, a bid security (BS) of **3 % of gross bid value** has to be submitted as Bid Security (Earnest money Deposit/ EMD).
- II. In the case of foreign bidders/tenderers, the BS shall be submitted either by the principal or by the Indian agent and in the case of indigenous bidders/tenderers; the BS shall be submitted by the manufacturer or their specifically authorized dealer/Bidder/Tenderer.
- III. The bid security shall be in Indian Rupees. The bid security shall be in one of the following forms at the Bidder/Tenderers' option:
 - (a) A Banker's cheque or demand draft in favour of the Director, NIT Raipur.
 - (b) FDR in favour of the Director, NIT Raipur
- IV. The bid security should be submitted in its original form. Copies shall not be

accepted.

- V. *Any bid without EMD or bid not secured in accordance with above will be rejected by the Institute as non- responsive.*
- VI. The bid security of unsuccessful Bidder/Tenderer will be discharged /returned as promptly as possible but not later than 30 days after the expiration of the period of bid validity or placement of order whichever is later.
- VII. The successful Bidder/Tenderer's bid security will be discharged upon the Bidder/Tenderer furnishing the performance security.
- VIII. The firms registered with DGS&D & NSIC, if any, are exempted from payment of BS provided such registration includes the item they are offering which are manufactured by them and not for selling products manufactured by other companies.**
- IX. The bid security may be forfeited:**

- (a) If a Bidder/Tenderer withdraws or amends or impairs or derogates its bid during the period of bid validity specified by the Bidder/Tenderer on the Bid Form; or

11. Sealing and Marking of Bids:

In a two bid system All Bidders/Tenderers are requested to follow carefully the following instructions before preparing their offer.

Part I: Technical & Commercial Bid

Part - (a) Technical

- i. This part should contain detailed specifications of the items quoted by you along with technical literature and leaflets.
- ii. A compliance statement showing the compliance of the item quoted by you with that of item tendered by us should be prepared and enclosed to this.
- iii. Any other information called for in the tender related technical and commercial specifications can also come in this part.
- iv. Prices should NOT be indicated in this cover.

Part - (b) Commercial terms: (WITHOUT PRICE)

- i. The commercial terms applicable for the items quoted by you should be indicated in this part.
- ii. If any compliance statement is called for the commercial terms/contractual terms and conditions, the same is to be attached in this part.
- iii. ***Prices should NOT be indicated in this part. However a copy of the price bid (without prices) must be enclosed in this part to enable to understand whether all the items required to be quoted by you have been quoted in the price bid.***
- iv. The Commercial terms such as delivery terms, delivery period, payment terms, Warranty, validity of the offer, installation & commissioning, duties and taxes etc., shall come into this.
- v. The required EMD should be enclosed.
- vi. The Tenderer/ bidder need to submit the following certificates along with

the Tender Documents to confirm their eligibility in this part :

- Proof of establishment of Firms/shop/business/ manufacturing unit etc. and Dealership certificate from the principals etc.
- Proof of registration with any other central government organization (if any)
- Photocopies of purchase orders received from any central govt. organization to the firm (if any).
- The Sales Tax/Commercial Tax/Service tax certificate should be enclosed
- The bidder should enclosed proof of turnover by way of Audited Balance Sheet/Auditor's certificate, if required.
- The bidder should Photocopy of PAN card issued un the name of the bidder's firm.

Note:

- Technical Specifications and terms & conditions as above should be very clearly reflected item-wise with reference to the items called for in the tender.
- Please note that the PRICE SHOULD NOT BE indicated in this part.
- Technical and Commercial part as described above shall be prepared and put it in a sealed cover.

Part II: Price Bid

The prices applicable for the items, item-wise in response to the tender shall come into this part in the prescribed format only. ***Bid will be rejected if rates are not quoted in the prescribed format.***

- i. Tenderer shall indicate very clearly item-wise prices with reference to their technical offer.
- ii. Price Bid prepared as above shall be enveloped and marked as follows:

The Technical & Commercial envelope (Part I) and Price cover (Part II) prepared as above along with 'Tender fee' which should be inserted in another envelope and marked as tender fee:

All envelop should be addressed to Registrar NIT RAIPUR and top of all envelop should be super scribed with (Tender No/ Department and due date of opening.). Part I: TECHNICAL BID with EMD & COMMERCIAL BID, Part II: PRICE BID should also be mentioned on respective envelop.

12. The bidders should quote their offer /rates in clear terms without ambiguity.
13. The rates should be quoted both in figures and words and legibly written without any over-writings. In case of any correction, the same must be attested by the bidder with full signature. However, no over-writing is permissible. Manufacturer's price-list, where applicable, should be submitted along with the bid.
14. In case of any discrepancy between the rates in figures and that in words, the rate in words will be accepted as correct.

15. Each bidder shall submit only one bid. A bidder, who submits more than one bid, shall be disqualified and considered non-responsive.

16. The bidder has to sign in full at all pages of the bidding document.

17. Bid Prices

- (i) The Bidder/Tenderer shall indicate **unit prices in the prescribed format only**.
 - (ii) Prices indicated on the price-schedule form shall be entered separately in the following manner:
 - (a) **For Goods being offered from India/ abroad in INR**
 - i. The price of the goods quoted should be FOR NIT RAIPUR inclusive of all taxes(Excise duty, VAT/ST, etc), charges for inland transportation, insurance and other local services required for delivering the goods at the desired destination as specified in the price schedule form, installation, commissioning, training charges etc , if any. **(Annexure V)**
 - (b) **For Goods being offered from abroad in currency other than INR**
 - i. The price of the goods, quoted on FCA (named place delivery abroad) or FOB (named port of shipment), as specified in the price schedule form. The price should be FOR NIT RAIPUR inclusive of all taxes, charges for insurance and transportation of the goods, agency commission, installation, commissioning, training charges etc if any. **(Annexure VI]**
 - ii. The terms FOB, FCA, CIF, CIP etc. shall be governed by the rules prescribed in the current edition of the Incoterms published by the International Chambers of Commerce, Paris.
 - iii. Prices quoted by the Bidder/Tenderer shall be fixed during the Bidder/Tenderer's performance of the Contract and not subject to variation on any account.
18. Conditional discount, if any, offered by the bidder shall not be considered at the time of evaluation.

19. Responsiveness of Bids

- (i) Prior to the detailed evaluation, the Institute will determine the substantial responsiveness of each bid to the bidding documents. For purposes of this clause, a substantive responsive bid is one, which conforms to all terms and condition of the bidding documents without material deviations, reservations or omissions. A material deviation, reservation or omission is one that:
 - (a) affects in any substantial way the scope, quality, or performance of the Goods and Related Services specified in the Contract; or

- (b) limits in any substantial way, inconsistent with the Bidding Documents, the Institute's rights or the Bidder/Tenderer's obligations under the Contract; or
- (c) if rectified, would unfairly affect the competitive position of other bidders/tenderers presenting substantially responsive bids.
- (ii) The Institutes' determination of a bid's responsiveness is to be based on the contents of the bid itself without recourse to extrinsic evidence.
- (i) If a bid is not substantially responsive, it will be rejected by the Institute and will not subsequently be made responsive by the Bidder/Tenderer by correction of the material deviation, reservation or omission.

20. Evaluation and comparison of bids

- (i) The Purchaser shall evaluate each bid that has been determined, up to this stage of the evaluation, to be substantially responsive.
- (ii) To evaluate a Bid, the Purchaser shall only use all the factors, methodologies and criteria defined below. No other criteria or methodology shall be permitted.
- (iii) The bids shall be evaluated on the following basis which shall be arrived as under:

For goods being offered from India.

Goods price will be calculated FOR NIT Raipur. Lowest bid (L1) will be deciding by the price of the goods quoted should be FOR NIT RAIPUR inclusive of all taxes (Excise duty, VAT/ST, etc), charges for inland transportation, installation, commissioning, training charges, insurance and other local services required if any for delivering the goods at the desired destination as specified in the price schedule Price Bid format

For goods being offered from Abroad

- (i) In case of goods being offered from abroad, Lowest bid (L1) will be decided based on total cost at NIT Raipur, that include basic price of goods, freight and Insurance up to Indian Airport/port (CIF/CIP value up to Indian airport/port), custom duty and other taxes as applicable etc., Inland transportation and insurance up to NIT Raipur, packaging, forwarding, agent commission for custom clearance and installation, commissioning and training charges if any.
- (ii) **Conversion to Single Currency:** To facilitate evaluation and comparison, Bids quoted in foreign currency will be converted into Indian Rupees at the selling exchange rate established by Reserve Bank of India on its website, on the date of price bid opening.
- (iii) In case charges for packing, forwarding, transportation inside India, custom clearance charges or other incidental charges are quoted extra in addition to the quoted rates, the amount thereof must be specified. Packing, forwarding, freight, entry tax etc., when quotes separately are

reimbursable at actuals after production of original receipts/invoices. If external agencies are employed, their receipts must be enclosed with the invoice.

- (iv) *If vender wishes, he/they may alternatively, quote price of imported items in Indian rupees. In this case item may be treated as offered from India. Payment will be released accordingly.*

Note: *Where there is no mention of packing, forwarding, freight, transportation, insurance charges, taxes etc. such offers shall be REJECTED as incomplete.*

21. Clearance and delivery

On arrival of shipment/consignment, the supplier is required to arrange custom clearance and transportation of the consignment up to NIT RAIPUR premises. The Tenderer/ bidder will do all types of clearance work and **formalities to deliver/provide the equipment at the site of installation. The expenses incurred will be reimbursed on actual basis not exceeding the quoted amount.** Institute will provide all types of documentary support including Customs Duty exemption certificate. The custom duty, demurrage (in case of delay in release of custom duty to the custom department by NIT Raipur) and government taxes/levies (if any) will be paid extra by the buyer after as per term of payment. Please note that the State of Chhattisgarh may charge entry tax on all goods entering the State. This may be included in your quotation as a separate item. Entry Tax will be reimbursed on production of proof of payment. **Principals will themselves have to procure any requisite permission from the Govt. of country of origin of equipment.**

22. Agency Commission/other charges

Agency commission, if any, should be clearly mentioned by the Bidder/tenderer and will be paid in Indian Currency. Please note that actual reimbursement will not exceed the quoted amount in any circumstances.

23. The Institute reserves right to conduct pre-dispatch inspection of goods and the vender must facilitate it at NIT Raipur's cost for pre-dispatch inspection.

24. **Warranty Period:** The warranty period should be minimum **1 year** with spares or as mentioned in technical specifications (whichever is higher) from the date of installation with satisfactory performance as per specifications. For standard items which carry warranty of more than one year, standard warranty shall be applicable.

25. **Terms of Payment:** The method and conditions of payment to be made to the Supplier under this Contract shall be as follows:

(i) **Payment for Goods and Services offered from India:**

Payment for Goods and Services supplied from within India shall normally be made in Indian Rupees, as follows: 100% payment will be made in account

payee cheque or Draft/ online Transfer using RTGS to the Supplier normally within thirty (30) days after the successful installation and commissioning of equipment's subject to submission of performance security, if any.

(ii) Payment for Goods and services offered from abroad:

Payment of foreign currency portion shall normally be made in the currency of contract in the following manner:

a) **On Shipment:** Ninety (90) percent of the Contract Price of the Goods shipped shall be paid through irrevocable letter of credit (L/C) opened in favor of the Supplier in a bank in its country, upon submission of following documents specified as below:

Within 24 hours of dispatch, the supplier shall notify the purchaser the complete details of dispatch and also supply following documents by Registered Post/ courier and copies thereof by FAX.

- i. Two copies of supplier's Invoice giving full details of the goods including quantity, value, etc.;
- ii. Packing list;
- iii. Certificate of country of origin;
- iv. Manufacturer's guarantee and Inspection certificate/test report;
- v. Inspection certificate issued by the Purchaser's Inspector, if any.
- vi. Insurance Certificate, if required under the contract;
- vii. Name of the Vessel/Carrier;
- viii. Bill of Lading/Airway Bill;
- ix. Port of Loading;
Date of Shipment;
- x. Port of Discharge & expected date of arrival of goods and
- xi. H S code of classification of goods.
- xii. Any other document(s) as and when required in terms of the contract.

Note:

1. The nomenclature used for the item description in the invoices(s), packing list(s) and the delivery note(s) etc. should be identical to that used in the contract. The dispatch particulars including the name of the transporter should also be mentioned in the Invoice(s)
2. The above documents should be received by the Purchaser before arrival of the Goods and, if not received, the Supplier will be responsible for any consequent expenses.

b) **On Acceptance:** Ten (10) percent of the Contract Price of Goods received shall be paid within thirty (30) days of receipt of the Goods and successful installation & commissioning upon submission of claim supported by the acceptance certificate issued by the Purchaser along with the Performance security, if any.

- The L/C will be confirmed at the suppliers cost, if requested specifically by the supplier. If L/C is requested to be extended/ reinstated for reasons not attributable to the purchaser, the charges thereof would be to the suppliers' account. All bank charges in India to the account of the opener and all bank charges outside India to the account of the beneficiary. Payment of local currency portion shall be made in Indian

Rupees within thirty (30) days of presentation of claim supported by a certificate from the Purchaser declaring that the Goods have been delivered and that all other contracted Services have been performed. The L/C for 100% value of the contract shall be established after deducting the agency commission payable, if any to the Indian agent from the CIF/CIP value.

26. **Performance Security (PS):** The successful bidder has to furnish "**Performance Security of 10% of the ordered value in Indian Rupee**", in the form of Account Payee Demand Draft, / Fixes deposit and/or unconditional Bank guarantee encashable on demand from the Director, NIT, Raipur, from a nationalized Bank with validity period of sixty (60) days beyond the date of completion of all contractual obligations of supplier including guarantee/ warranty obligations. The Performance Security is to be furnished in favor of the Director, National Institute of Technology, Raipur, within ten days of intimation, failing which his bid security will be forfeited.

The performance security will be discharged by the Purchaser and returned to the Supplier not later than 60 days following the date of completion of the Supplier's performance obligations, including any warranty obligations.

27. **Delivery period:** Delivery should be made within **150 days** from the date of order of placement of goods offered from India or opening of the LC in case of goods offered from abroad.
28. **The Insurance** shall be for an amount equal to 110% of the CIF or CIP value of the contract from within "warehouse to warehouse/installation site (NIT Raipur)" on "all risk basis" including strikes, riots and Chemistry commotion.
29. **Delayed delivery:** Maximum one month extension in delivery period may be given on the receipt of written request of the successful vendor; however liquidated damage at the rate of 5% per month or part thereof will be recovered from the firm of the value of undelivered goods. Request for extension in delivery period should be made before the last date of supply as mentioned in Purchase Order.
- Non delivery beyond extended period:** If the Tenderer fails to execute the order within the delivery period as mentioned above the order will be cancelled and EMD will be forfeited by the institute.
30. **Installation time:** The Company must install the equipment within a period of two months from the date of delivery of the equipment at NIT Raipur failing which order will be cancelled and EMD will be forfeited. However, necessary requirement for installation of goods/equipment will be provided by institute.
31. **Copy Right:** The copyright in all drawings, documents, and other materials containing data and information furnished to the Purchaser by the Supplier herein shall remain vested in the Supplier, or, if they are furnished to the Purchaser directly or through the Supplier by any third party, including suppliers of materials, the copyright in such materials shall remain vested in such third party.

32. Insurance:

- a. Should the purchaser elect to buy on CIF/CIP basis, the Goods supplied under the Contract shall be fully insured in Indian Rupees against any loss or damage incidental to manufacture or acquisition, transportation, storage and delivery.
- b. Where delivery of the goods is required by the purchaser on CIF or CIP basis the supplier shall arrange and pay for Cargo Insurance, naming the purchaser as beneficiary, initiate & pursue claims till settlement, on the event of any loss or damage.
- c. With a view to ensure that claims on insurance companies, if any, are lodged in time, the bidders and /or the Indian agent, if any, shall be responsible for follow up with their principals for ascertaining the dispatch details and informing the same to the Purchaser and he shall also liaise with the Purchaser to ascertain the arrival of the consignment after customs clearance so that immediately thereafter in his presence the consignment could be opened and the insurance claim be lodged, if required, without any loss of time. Any delay on the part of the bidder/Indian Agent would be viewed seriously and he shall be directly responsible for any loss sustained by the purchaser on the event of the delay.

33. Right to use Defective Goods: If after delivery, acceptance, installation and within the guarantee and warranty period, the operation or use of the goods proves to be unsatisfactory, the Purchaser shall have the right to continue to operate or use such goods until rectifications of defects, errors or omissions by repair or by partial or complete replacement is made without interfering with the Purchaser's operation.

34. Site preparation and installation: The Purchaser is solely responsible for the construction of the equipment sites in compliance with the technical and environmental specifications defined by the Supplier. The Purchase will designate the installation sites before the scheduled installation date to allow the Supplier to perform a site inspection to verify the appropriateness of the sites before the installation of the Equipment, if required. The supplier shall inform the purchaser about the site preparation, if any, needed for installation, of the goods at the purchaser's site immediately after notification of Award / Purchase Order / Agreement.

37. Force Majeure:

- (i) Notwithstanding the Clauses relating to extension of time, penalty and Termination for Default the Supplier shall not be liable for forfeiture of its performance security, 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.

- (ii) For purposes of this Clause, "Force Majeure" means an event or situation beyond the control of the Supplier that is not foreseeable, is unavoidable, and its origin is not due to negligence or lack of care on the part of the Supplier. Such events may include, but not be limited to, acts of the Purchaser in its sovereign capacity, wars or revolutions, fires, floods, epidemics, quarantine restrictions, and freight embargoes.
- (iii) If a Force Majeure situation arises, the Supplier shall promptly notify the Purchaser in writing of such conditions and the cause thereof within 21 days of its occurrence. 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.
- (iv) If the performance in whole or in part or any obligations under the contract is prevented or delayed by any reason of force majeure for a period exceeding 60 days, either party may at its option terminate the contract without any financial repercussions on either side.

38. Defective Equipment:

- (i) If any of the equipment supplied by the Tenderer is found to be substandard, refurbished, unmerchantable or not in accordance with the description /specification or otherwise faulty, the institute 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 to him.
- (ii) 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.

39. Any disputes arising out of this enquiry shall be dealt in the Raipur jurisdiction.

40. Bidder has to sign all the pages of this tender and enclose it with the bid.

Registrar
NIT-Raipur

List of Annexure

1. List of Equipments – Annexure 1
2. Technical Specification of equipments/goods – Annexure 2
3. Technical Compliance of the bidder with reference to the 'Specification of Equipments :Annexure 3
4. Price Schedule for goods being offered from India - Annexure 4
5. Price Schedule for goods being offered from Abroad. - Annexure 5
6. Deviation statement form - Annexure 6
7. Bidder information & check list – Annexure 7

Annexure 1

List Of Equipments To Be Procured Under Tender

S. No	Name of Equipment	Qty
1.	MSK, GMSK, FSK, GFSK Modulator and Demodulator	2
2.	Delta, Adaptive Delta, Sigma Delta Modulator & Demodulator trainer	2
3.	RF amplifier	5
4.	TMS320C6745 DSP Trainer	9
5.	Lead free SMD rework station	1
6.	UPS 10 KVA	1
7.	Optical Fiber Communication Trainer Kit	2
8.	Multiplexer-Demultiplexer and Encoder-Decoder Kit	2
9.	Optical Power Meter	3
10.	Wavelength-Division Multiplexing Kit	1
11.	LASER Fiber Optics	2
12.	Digital Storage Oscilloscope	4
13.	DSB/SSB AM Transmitter	6
14.	DSB/SSB AM Receiver	6
15.	Frequency Modulation/ Demodulation	6
16.	PAM-PPM-PWM Modulation & Demodulation	3
17.	Online UPS for PCs 5 KVA	1
18.	Handheld digital Multimeter	4
19.	ARM Microcontroller Board	5
20.	Graphical LCD Board	5
21.	DSP Input Board	1
22.	DSP Output Board	1
23.	LED Array Board	5
24.	Adjustable Power Supply	5
25.	ARM Core 9 Based Board	1
26.	ARM Core 11 Based Board	1

27	Microprocessor 8086 trainer kit with interfacing modules	1 set
28	Logic Analyzer	1
29	Multi – Purpose Vacuum Cleaner	1
30	Desktop Workstation with monitor(23 inch) and relevant accessories	4
31	Digital SLR Camera 24.2 MP with lens 18-105 mm and tripod	1
32	Digital/analog electronics trainer	10

Annexure 2**Technical Specification of equipments/goods**

S. No	Name of Equipment	Specification
1.	MSK, GMSK, FSK, GFSK Modulator and Demodulator	- Modulations: Continuous Phase FSK (CPFSK), Minimum Shift Keying (MSK), Gaussian Frequency Shift Keying (GFSK), Gaussian Minimum Shift Keying (GMSK) etc. - Software programmable data rate up to 10 / 20 /30 10Mbps - Software programmable 2, 4, 8 array FSK - Software programmable modulation index h (0 to 10) - On-board digital data pattern generator as a test pattern - Gaussian Filter BT product is BT = 0.3 - Built in real-time data acquisition system with time domain signal analysis Additive White Gaussian Noise with Normal distribution up to 4.5 times the standard deviation using Box-Muller algorithm - Two channel Additive White Gaussian Noise Generator with 10 bits/sample/channel I & Q Channel DACs-10 bit@ Sampling rate 125 MSPS maximum Anti aliasing low pass filter with 3dB bandwidth of I & Q channel filter: Sallen Key 6-pole Butterworth with cut-off frequency 13MHz BER measurement using actual bit errors with a known digital data test sequence at the transmitter end - More than 10nos. of test points and 2 BNC connector for analysis using external Oscilloscope & Spectrum Analyzer M Supply : 110-220 V AC, 50/60Hz
2.	Delta, Adaptive Delta, Sigma Delta Modulator & Demodulator trainer	Modulation & Demodulation Techniques : Delta : Adaptive Delta : Sigma Delta First order : Sigma Delta Second order Internal Signal Generator : Direct Digital Synthesizer Types of Signal : Sine, Square, Triangle, Arbitrary signals Frequency : 500Hz, 1KHz, 2KHz, 3KHz External Signal : Types of Signal : Sine, Square, Triangle, Arbitrary signals Maximum Input Voltage : 3Vpp (Max.) +1.5V DC offset Frequency : 500Hz to 3.5KHz SMD LED Indicators : For DDS signal selection, DDS signal frequency selection, Sampling selection, Technique selection, Interconnect path Transmission Effect : Attenuation (7dB & 10dB) Noise, Filter Crystal Frequency : 8MHz Sampling Frequencies : 16KHz, 32KHz, 64KHz, 128KHz, 256KHz Integrator step : Normal & 3 times Selection Mode : Push switches Low Pass Filter : Cut-off frequency-5KHz Digital Filter : Decimation filter (16:1)
3.	RF amplifier	Connectors : SMA Female input and output Biasing Voltage : +12V DC (DC adapter provided) Operating frequency : 150MHz to 3GHz or wider Gain : 10dB or more Built in strong metallic housing

4.	TMS320C6745 DSP Trainer	1. JTAG supported via USB with JTAG cable provided. 2. TLV320AIC23B programmable stereo codec. 3. Two 3.5mm audio jacks for microphone and speaker. 4. Power supply: +5V, $\pm 12V$, GND with power adapter provided. 5. Provision for manual Reset. 6. White noise source of amplitude 0~5Vpp or more. 7. RTC interface: I2C based RTC section. 8. Code composer studio for the TMS320C6745 DSK is included. 9. Additional accessories: Four number of 3.5mm audio jack to BNC connector cable provided (Good quality copper cable of length > 50cm). 10. Whole unit enclosed in wooden or plastic enclosure for safe keeping. Warranty: 2 years or more.
5.	Lead free SMD rework station	Input power: 220-240 V, 50 Hz AC. Soldering wattage: 100 W or more. Soldering temperature range: 150 to 480 C or better. SMD rework wattage: 600 W or more. SMD rework temperature range: 100 to 480 C or better. SMD rework air flow capacity: 1.5L/min to 40L/min or better. Desoldering wattage: 100 W or more. Desoldering temperature range: 300 to 450 C or better.
6.	UPS 10 KVA	8.0 KWatts/ 10.0 kVA, 230V Output Power, Full load efficiency >90%, Warranty 1 Year Repair or Replace and two year for battery
7.	Optical Fiber Communication Trainer Kit	Transmitter : 2 nos., Fiber Optic LED having peak wavelength of emission 660 nm & 950 nm (Optional LASER source) Receiver : 2 nos., Fiber Optic Photodetector Modulation Techniques : AM, FM, PWM. Drivers : 1 no. with Analog & Digital modes AC Amplifier : 2 nos. Clock : Crystal controlled Clock 4.096 MHz PLL detector : 1 no. Comparator : 2 nos. Filters : 2 nos. 4 order Butterworth, 3.4 KHz cut-off frequency Analog Band Width : 350 KHz Digital Band Width : 2.5 MHz Function Generator : 1 KHz Sine wave (Amplitude adjustable) 1 KHz Square wave (TTL) Voice Link : Fiber Optic voice link using microphone & speaker (built in) PC-PC Communication : Using 2 channel RS232 Port : RS232 (9 Pin) Baud Rate : 19200 Switched Faults : 4 in Transmitter & 4 in Receiver Fiber Optic Cable : Connector type standard SMA Cable Type : Step indexed multimode PMMA plastic Core Refractive Index : 1.492 Clad Refractive Index : 1.406 Numerical Aperture : Better than 0.5 Acceptance Angle : Better than 60 deg. Fiber Diameter : 1000 microns Outer Diameter : 2.2 mm Fiber Length : 0.5m & 1m Test Points : 50 nos. (Gold plated) Inter connections : 2 mm sockets Dimensions (mm) : W 326 D 252 H 52 Weight : 2.4 Kg approximately Power Supply : 110 -220 V, $\pm 10\%$, 50 / 60 Hz Power Consumption : 4.5 VA approximately Operating Condition : 0-40 C, 80% RH Product Tutorial : Online (Theory, procedure, reference results, etc).

		Included Accessories : Numerical Aperture measurement jig, Mandrel, Fiber Cables, Microphone, Headphone, Set of Patch Cords, PC-PC communication Software, Eye pattern and BER measurement module, TechBook Power Supply. Optional : Optical Power Meter, 5 meter fiber cable, 10 meter fiber cable, LASER Source.
8.	Multiplexer-Demultiplexer and Encoder-Decoder Kit	Transmitter : 2 nos., Fiber Optic LED having peak wavelength of emission 660 nm & 950 nm (Optional LASER source) Receiver : 2 nos., Fiber Optic Photodetector Modulation Techniques : AM, FM, PWM. Drivers : 1 no. with Analog & Digital modes AC Amplifier : 2 nos. Clock : Crystal controlled Clock 4.096 MHz PLL detector : 1 no. Comparator : 2 nos. Filters : 2 nos. 4 order Butterworth, 3.4 KHz cut-off frequency Analog Band Width : 350 KHz Digital Band Width : 2.5 MHz Function Generator : 1 KHz Sine wave (Amplitude adjustable) 1 KHz Square wave (TTL)
9.	Optical Power Meter	Detector : Silicon detector Range : 0 dBm to -60 dBm Display : 12 mm LCD Wavelength : 660 & 950 nm* Connector : SMA Accuracy : 0.5 dBm Power : 9 V Battery Size (mm.): W 100 × D 45 × H 175
10.	Wavelength-Division Multiplexing Kit	Data Generators : 2 nos. (15 Bit Data) Comparators : 2 nos. (5V TTL Output) Light Sources : 2 nos, Laser Diode, Power Output -3dB Optical Detectors : 2 nos, Photo Diode, Measuring Range +3dB -50dB WDM Coupler : 2X1, Coupling Ratio 50:50, Operating Wavelengths (all) : 1310nm & 1550nm Connector types (all) : FC Fiber Optic Cable : Single Mode, 25Km (Optional) PC-PC Communication : Using 2 Channels (RS-232 Port) Advance Fiber optics Lab : 2 Kg approximately Fiber Spool 25Km (Optional) : 3 Kg approximately Power Supply : 230 V 10%, 50/ 60Hz Power Consumption : 3.5 VA approximately Weight : 2.3 Kg approximately Dimensions (mm) : W 450 × D 280 H 113 Included Accessories : Patch cord 16" (2mm) : 10 nos. Mains cord : 1 no. RS232 Cable, Length 1 meter : 2 nos.
11.	LASER Fiber Optics	Transmission Module : Type : Laser 660 nm Operating Mode : ACC & APC Receiver Module : Demodulator : Photo transistor Power meter : PIN Diode Power Supply : 6 V DC Adapter (plug to 230 V Mains) Learning material : Online (Theory, procedure, reference results, etc). Included Accessories : Transmitter : 1 no. Receiver : 1 no. Fiber optic cable (Plastic) : 1 no. Fiber optic cable (Glass) : 1 no. Mains cords : 2 nos.

		Learning material (CD) : 1 no. NA measuring Jig : 1 no. NA Measurement scale : 1 no. Mandrel : 1 no.
12.	Digital Storage Oscilloscope	Bandwidth : 50 MHz Analog Channels : 4 Sample Rate : 1GSa/s (Single-channel), 500MSa/s (Dual-channel), 250MSa/s (Full-channel) Max Memory Depth : 12Mpts (standard), 24Mpts (option) Max. Waveform Capture rate : Up to 30,000 wfms/s Real Time waveform Record and Replay : Up to 60,000 Frames (Opt.) Std. Probes : RP2200 150MHz BW Passive Probe: 4 sets Built in 2 Ch Source : No
13	DSB/SSB AM Transmitter	Audio Oscillator : With adjustable Amplitude & Frequency (300 Hz - 3.4 KHz) Audio Output : Amplifier with speaker Modulators : Balanced Modulator with Band pass Filter (1 MHz) - 2 nos. Balanced Modulator : 1 No. (455 KHz) Ceramic Bandpass Filter : 1 No. (455 KHz) Carrier Frequency : 1 MHz (Oscillator controlled) Transmitter Amplifier Output: (Gain adjustable) DSB (1 MHz), SSB (1.445 MHz)
14	DSB/SSB AM Receiver	Superhetrodyne; Frequency Range : 980 KHz to 2060 KHz Intermediate Frequency : 455 KHz Input Circuits : 1) RF Amplifier 2) Mixer 3) Local Oscillator 4) Beat Frequency Oscillator 5) IF Amplifier 1 6) IF Amplifier 2, Tuning : With variable capacitor (ganged), Dial marking on board Receiving media : Telescopic antenna / Cable, Detectors: 1) Diode detector (for DSB) 2) Product detector (for SSB) Audio Output : Amplifier with speaker, Automatic Gain Control : Switchable
15	Frequency Modulation/ Demodulation	Audio Oscillator: With adjustable Amplitude & Frequency (300 Hz - 3.4 KHz) FM Modulator: 1) Reactance Modulator (with carrier frequency adjustment) 2) Varactor Modulator (with carrier Frequency adjustment) Mixer / Amplifier: (With Gain adjustment) Allows FM input signal to be amplitude modulated by a noise input prior to demodulation. Transmitter Output: 455 KHz Frequency FM Demodulator: 1) Detuned Resonant Detector 2) Quadrature Detector 3) Foster -Seeley Detector 4) Ratio - Detector 5) Phase Locked Loop Detector Low Pass Filter: 3.4 KHz Cut off Frequency Amplifier (with adjustable gain)
16	PAM-PPM-PWM Modulation & Demodulation	Pulse Modulation Techniques : Pulse Amplitude Modulation Pulse Width Modulation Pulse Position Modulation On-board Sampling : 8 KHz, 16 KHz, Frequencies (Pulse) 32 KHz, 64 KHz with adjustable gain
17	Online UPS for PCs 5 KVA	Rating of UPS: 5.0KVA/6.0 KVA, Indicative Back-up time: 60 Minutes 230V Output Power, Full load efficiency >90 % Warranty 1 Year Repair or Replace and two year for battery

18	Handheld digital Multimeter	Voltage DC: Accuracy: $\pm(0.09\% + 2)$, Minimum: 0.1mV, Maximum: 1000V Voltage AC: Accuracy: $\pm(1.0\% + 3)$, Minimum: 0.1mV, Maximum: 1000V Current DC: Accuracy: $\pm(1.0\% + 3)$, Minimum: 0.01mA, Maximum: 10A Current AC: Accuracy: $\pm(1.5\% + 3)$, Minimum: 0.01mA, Maximum: 10A Resistance: Accuracy: $\pm(0.9\% + 1)$, Minimum: 0.1ohm, Maximum: 50Mohm Capacitance: Accuracy: $\pm(1.2\% + 2)$, Minimum: 1nF, Maximum: 10,000nF Frequency: Accuracy: $\pm(0.1\% + 1)$, Minimum: 0.01Hz, Maximum: 100KHz Temperature : Accuracy: $\pm(1.0\% + 10)$, Minimum: 0.1°C, Maximum: -40°C / 400°C
19	ARM Microcontroller Board	ARM Microcontroller Board should have the following features: - The development board should support the powerful AT91 SAM 7 32 bit RISC @ 80 MHz microcontroller from Atmel. - The board should be supported by Flow Code and provide 'clean' access to all I/O lines on the relevant Atmel ARM devices. - All I/O should be Terminated on a DB-9 Type connector for Easy Plug & Play. - It should have 128k ROM and 32K static RAM. - It should also have at least 2 USARTs, 4x 10 bit A/D converters and a native USB bus. - The board should be fully compatible with existing range of E-blocks. - The board should have at least 5 ports and the processor itself be housed on a removable daughter board. Should be USB programmable with boot loader should offer both Native USB and SPI buses. - Should support Removable crystal. - Should be programmable in C and ASM using FLOW Code programming Utilities.
20	Graphical LCD Board	The Graphical Board should have the following features: - The new graphical display board features a new 128 x 160 pixel, 16-bit color, 1.77 inch graphical TFT display. - The display features a LED backlight with PIC, AVR, ARM & PIC microcontroller based brightness control as well as compatibility with it. - It should be compatible with Flow Code and its Programming Utilities. - It should allow all its Pins on a DB9 connector. - It should have power connector to support 3.3V & 5V. - It should be compatible with Macros written in Flow Code.
21	DSP Input Board	The DSP Input Board should have the following features: - The DSP input board should have all the components required to allow high quality 16-bit audio into your microcontroller system. - It should include on-board microphone, fully adjustable gain and filters. - It should be compatible with Flow Code and its Programming Utilities. - It should allow all its Pins on a DB9 connector. - It should have power connector to support 3.3V & 5V.

		- It should be compatible with DSP Macros written in Flow Code. - The board should be interfable with PIC/AVR/ARM &dsPIC/PIC24 microcontrollers.
22	DSP Output Board	The DSP Output Board should have the following features: - The DSP output board features all the components required to allow high quality 16-bit audio from Your microcontroller system. - It should Feature a high quality potentiometers, an on-board speaker, fully adjustable gain and filters. - It should be compatible with Flow Code and its Programming Utilities. - It should allow all its Pins on a DB9 connector. - It should have power connector to support 3.3V &5V. - It should be compatible with DSP Macros written in Flow Code. - The board should be interfable with PIC/AVR/ARM &dsPIC/PIC24 microcontrollers.
23	LED Array Board	The LED Array Board should have the following features: - The board should offer an array of 8x5 high Brightness Red Leds which should be programmable/controllable for visual signs &pointer . - The board should allow large data cascading from one board to the next . - It should be interfaceble with PIC/AVR/ARM & dsPIC /PIC24 Microcontrollers. - It should be compatible with macros written in Flow Code Software.
24	Adjustable Power Supply	Voltage Range 0-13
25	ARM Core 9 Based Board	The board should have the following features: - It should support Samsung ARM9 S3C2440A ARM920T, up to 400MHz. It should support Nand Flash can be updated into 1GB and SDRAM can be updated into 128MB immediately according to the customer requirement. - It should have NOR Flash of 2MB Bootable & Upgradable to 8MB. - Core Power of 1.25 VKernelVoltage. - It should support One Key to update Boot-loader, Kernel, Yaffs, NK.bin and one Key to configure parameters of Linux. - It should have 2mm pitch 20-pin Camera interface with driver System parameters can be saved in REGEDIT, and residual Flash can be read and written the system can be updated via USB interface. - Supporting WinCE 6.0 and Linux 2.6.25/Linux2.6.30 It should be interfable with GPS, GPRS, Camera, Printer, WIFI, AV, VGA
26	ARM Core 11 Based Board	The Board should have the following specifications:- Processor: Samsung ARM S3C6410, ARM1176JZF-S, up to 667MHz. 128MB DDR SDRAM, 166MHz 256MB NAND Flash, 16bit ,2MB NOR Flash - Two kinds of LCD/Touch Screen interface. Supporting 4.3 inch TFT LCD and 7 inch TFT LCD.

		• 50-Pin GPIO connector, 50-Pin data and address BUS connector, S-Video display interface, One TVOUT • One VGA interface, One 10-pin A/D interface • Two 20-pin SPI interface, it can connect WIFI, DTV Module • One audio input interface (3.5mm audio jack) • One 2-channel audio output interface (3.5mm audio jack) • One 10/100M Ethernet interface (RJ45) • One High-speed USB2.0 OTG port (Mini USB type interface) • Four serial ports (Two are five-wire RS-232 DB9 interface, another two are three-wire TTL serial port led out from a 20-pin expansion connector) • SD/MMC interface (supports 3.3V and 1.8V logic voltage) • Two camera interfaces (30-pin FPC connector, support CCD or CMOS camera) • One 20-pin JTAG interface, one 10-pin CPLD JTAG interface • Eight buttons (Reset, Boot, User defined, On/Off) • Power supply: +12V • Optional module: GPS, WIFI, Camera, Bluetooth, USB HUB and Matrix Keyboard Module and 3G Modem Modular Design: carrier board-200mm x 140mm; CPU board- 81.2mm x 55.8mm • Should be compatible with WinCE6.0, Linux2.6.28, Android2.3
27	Microprocessor 8086 trainer kit with interfacing modules	Set consisting of: 1. 8086 microprocessor trainer kit – 10 nos 2. Interface boards – 1 each. Specification of 8086 microprocessor board: • 8086/8088 CPU operating at 5MHz/6MHz/8MHz • 8086 Processor can be replaced by 8088 Processor • On-board sockets provided to facilitate the use of 8087 Co-processor and 8089 I/O Processor • 16K bytes of RAM using two nos. of 6264 with Battery Backup expandable up to 256KB. • 16K bytes of powerful monitor EPROM using two nos. of 27512 • 72 I/O lines through 3 nos. of 8255 brought at 26 Pins FRC Connector to interface with IC-XX Series. • 16 bit Timer/Counter through 8253 brought out at 20 Pins FRC Connector. • RS-232C interface using 8251 brought out at 9 Pins D-Type Connector. • On-board Interrupt controller using 8259 brought out at 20 Pins FRC Connector. • 20x2/40x2/20x4 Alphanumeric LCD Display with

		Backlite • 101 ASCII Keyboard interface using 89c2051 operating @ 12MHz • Powerful Commands like Examine/Edit Memory, Examine/Edit Register, Single stepping, Execution, Block Move can be used through ASCII Keyboard. • On-board Single Line Assembler & Disassembler. • Facility for Downloading/Uploading files from/to PC. • All address, data & control lines are available on KXT Bus 50 pin FRC Connector to interface with SC-XX Series. • All ICS are mounted on IC Sockets. • Bare board Tested Glass Epoxy SMOBC PCB is used. • In-Built Power Supply of +5V/2A, $\pm 12V/250mA$ • Attractive ABS Plastic enclosures. • User's Manual with sample programs. • Troubleshoot manual
28	Logic Analyzer	• Large scale integrated circuit, FPGA, SOPC, high speed & large memory, Simple & clear front panel design. • 5'6" or better TFT color LCD with clear graph interface, convenient operation. • Perfect functions of start, trigger and delay to track and take the concerned data and timing effectively. • A fast and effective debugging tool for hardware and software of MCU. • Data measuring tool for the logical state analysis and timing analysis of digital circuit. • RS-232 & USB Interface. • Sample Rate timing rate: 1 MHz $\sim$ 100 MHz state rate: 1 MHz $\sim$ 100 MHz • Display 8 channels of timing waveforms or 18 rows of state data • Graph Controlling horizontal zooming : 1$\sim$999 times • Cursor Control Measurement Cursor, Trigger Cursor, Search Cursor. • Measurement Cursor dynamic display of data and time difference between two cursors • Trigger Cursor all sample points satisfied with trigger state • Input Characteristics : Input Channel 32 data channels, 2 external clock channels o Threshold Voltage 6 independent and adjustable threshold voltages Range $-6V \sim 6V$, Resolution: 0.1 V • Input Range 500mVpp $\sim$ 20Vpp • Input Impedance $> 100k\Omega$ o Input Capacitance $< 8pf$ • Input Protection maximum input voltage $\pm 40V$ with undamaged • Trigger Characteristics : Start Condition 32 bits start-bit, 32 bits start-compare word • Trigger Condition 32 bits trigger-bit, 32 bits trigger-compare word • Trigger Restriction $>$, $=$, $<$ o Event Count 1 $\sim$ 999 o Trigger Selection On / Off • Storage Delay 1 $\sim$ 260000 sampling periods • Sample / Storage Characteristics : Timing Sample Rate 1 Hz $\sim$ 100 MHz, internal clock • State Sample Rate 1 Hz $\sim$ 35 MHz, external clock clk 1, external clock clk 2 • Sample Phase rise edge, fall edge • Sample Mode single sample, continuous sample o Memory Depth 256 k bits / channel • Code Generator Characteristics: Code Type Channel 00 to 15 are counter with adding one; Channel 16 to 29 are shift Pulse; Channel 30 to 31 are used for monitoring

		external clk1 & clk2. or better. • Code Rate: Frequency: 1Hz ~ 50Mhz [cycle 20ns ~ 1s] or better. • Resolution : 10ns or better General Power : AC 100 ~ 240V, 45 ~ 65Hz
29	Multi – Purpose Vacuum Cleaner	• Blower efficiency 30-35lt/sec or better • Dimensions 450 x 260 x 270 in mm (Lx Wx H) • Dust Capacity 3 - 4 litre or better • Input Power (IEC) 1200-1400 watts • Net Weight 4 - 5 kg • Suction of motor 2200-2450mm/wc • Voltage 230 V AC, 50 H
30	Desktop Workstation with monitor(23 inch) and relevant accessories	• Intel® Xeon® E5-1620v3 Processor(4 cores) • Window 8.1 Pro • 16GB DDR4-2133 (2x8GB) ECC Registered RAM upgradable up to 128 GB • Turbo Drive G2 1TB HDD • Integrated SATA 6.0 Gb/s Controller • NVIDIA Quadro K620 2GB Graphics • Dedicated 9.5mm Optical Drive Bay • HDD Activity LED • 23" IPS Display • Front I/O: 4 USB 3.0 with Charging Port (topmost port), 3. Power Button 1 Microphone, 1 Headset • Internal I/O- 2 USB 2.0 ports available with a single 2x5 header. The 2x5 header can be converted to a standard (Type-A) USB connector through the use one Internal USB Port Kit (EM165AA). This port kit uses one half of the 2x5 header. The 2x5 header also supports up to one 15-in-1 Media Card Reader. 1 USB 3.0 port available by a 2x10 header • Rear I/O: Rear Power Button, 4 USB 3.0, 2 USB 2.0, PS/2 Ports, 1 RJ-45 to Integrated GbE, 1 Audio Line In, 1 Audio Line Out • Interfaces Supported 15-in-1 Media Card Reader (optional) 6-channel SATA interface (6 @ 6.0 Gb/s). 6 channels are eSATAconfigurable for use with eSATA CTO/AMO Kit (No hot plug / hot swap supported). USB 2.0, USB 3.0 • 8 DIMM Slots for DDR4 ECC Registered Memory • 700W, 90% Efficient Power Supply • Expansion Slots: Slot 1 (top): PCI Express Gen2 x1 with open ended connector allowing a greater bandwidth (e.g. x16) card to be installed physically into a lower bandwidth connector/slot, Full height, Half length Slot 2: PCI Express Gen3 x16 Full -height, Full-length (with extender) Slot 3: PCI Express Gen2 x4 with open ended connector allowing a greater bandwidth (e.g. x16) card to be installed physically into a lower bandwidth connector Full -height, Full-length (with extender) Slot 4:PCI Express Gen3 x8 with open ended connector allowing a greater bandwidth (e.g. x16) card to be installed physically into a lower bandwidth connector Full-height, Full-length (with extender) Slot 5:PCI Express Gen3 x16 Full-height, Full-length (with extender) Slot 6:PCI 32bit/33MHz Full-height, Full-length (with extender)

		Open-ended connector 2 internal 3.5" bays (with acoustic dampening rail assemblies' pre -installed) 2 external 5.25" bays / 3rd and 4th 3.5" HD D each occupy one external bay / 3rd and 4th 2.5" HDD/SSD occupy a single external bay within a 2:1 carrier) / 1 dedicated 9.5mm slim optical disk drive bay • Energy Star Certified Workstation EPEAT Registered. • Workstation Performance advisor software to be bundled • One High quality headset • 3 years Part + 3 years Labour + 3 years Onsite
31	Digital SLR Camera 24.2 MP with lens 18-105 mm and tripod	• Type- Single-lens reflex digital camera • Lens mount- F mount, (with AF coupling and AF contacts) • Image sensor type- CMOS • Sensor size- 23.5mm, x15.6mm • Total pixels- 24.72million • Image size (pixels)- DX (24x16) image area, (L)6000, x4000, (M)4496, x3000, (S)2992, x2000, 1.3x (18x12) image area, (L)4800, x3200, (M)3600, x2400, (S)2400, x1600, • File format-- RAW: 12 or 14 bit, lossless compressed or compressed, JPEG: JPEG-Baseline compliant with fine (approx. 1 : 4), normal (approx. 1 : 8), or basic (approx. 1 : 16) compression (Size priority); Optimal quality compression available, RAW + JPEG: Single photograph recorded in both RAW and JPEG formats • Card slot- 2 Secure Digital (SD) cards, Slot 2 can be used for overflow or backup storage or for separate storage of copies; pictures can be copied between cards. • Magnification- Approx. 0.94 x (50 mm f/1.4 lens at infinity, $-1.0 \text{ m}^{\{\text{sup}(-1)\}}$) • Eyepoint-19.5 mm ($-1.0 \text{ m}^{\{\text{sup}(-1)\}}$); from center surface of viewfinder eyepiece lens) • Mode-- Auto modes (auto; auto (flash off)); scene modes (portrait; landscape; child; sports; close up; night portrait; night landscape; party/indoor; beach/snow; sunset; dusk/dawn; pet portrait; candlelight; blossom; autumn colors; food); special effects modes (night vision; color sketch; miniature effect; selective color; silhouette; high key; low key); programmed auto with flexible program (P); shutter-priority auto (S); aperture-priority auto (A); manual (M); U1 (user settings 1); U2 (user settings 2) • Autofocus system- Advanced Multi-CAM 3500 II autofocus sensor module with TTL phase detection, fine-tuning, 51 focus points • Battery- One EN-EL15 rechargeable Li-ion battery • AC adapter- EH-5b AC adapter; requires EP-5B power connector (available separately) Dimensions (W x H x D)-Approx.135.5, x106.5, x76mm (5.4, x4.2, x3.0in.)
32	Digital/analog electronics trainer	• 10 Logic Level buffered input using Push Switch with dual color indication Led • 10 Logic Level or more Output indicator indicating Hi, Lo, Pulse, HI-Z • Function generator 0-200KHz in 5 steps, Sine Triangle Amplitude, Frequency & Offset adjustment pots or more. • TTL Clock generator 1Hz, 10Hz, 100Hz, 1KHz, 10KHz, 100KHz, 1MHz – • Manual Pulsar for Logic High & Logic Low

		• Logic Probe Indicator In Led & Seven Segment Display • Two 7-segment BCD display or better. • 200KHz TTL Frequency counter displaying in 7 Segment Display, -10K, 100K Potentiometer • Continuity Tester with Buzzer sound. • Variable DC Supply 0 to +30V/100mA, 0 to -30V/100mA • Fixed DC Supply+15V/200mA, -15V/200mA,+5V/500mA • AC Supply 18-0-18/100mA, • Protection circuit for DC source. • 1660 Tie Points Bread Board Module or better • Four nos of DPM to measure Voltage 0-200mV,2V,20V,200VDC (with LED Display) & Current (with LED Display) range 0-2mA, 20mA,200mA,2A. • All inputs & Outputs are provided to be in 2mm banana Socket. • 230V Ac power input Socket, Power Chord, without ON/OFF Switch. • Repairable patch cord should be provided • User manual • Circuit manual of the trainer
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Annexure 3**Technical Compliance of the bidder with reference to the
'Specification of Equipments'****Name and model no of offered goods/equipment:**

Item	Technical specification from NIT Raipur	Features available in equipments Yes or No	Any deviation from Specification, if any	Corresponding part number /datasheet/page no in broacher in support of specification	Comment of Technical Committee , NIT Raipur

Signature of Bidder

Annexure-4

Price Schedule form: Price Schedule for Goods Being Offered from India/Abroad in INR
(Separate form to be used for each item offered)

Name of the Bidder/Tenderer:

Name & Model No of offered good:

Tender No.:

S. No.	Details	Price per Unit in INR
1	Ex-works, Ex-warehouse, Ex-show room off the shelf price (inclusive of all taxes already paid)	
2	VAT & other taxes like excise duty* payable, if contract is awarded	
3	Packing & forwarding up to station of dispatch, if any	
4	Charges for inland transportation, insurance to ultimate destination i.e. NIT, Raipur, if any	
5	Installation, Commissioning and training Charges, If any	
6.	Any other charges (Please specify)	
Total Price (Sum of S. No 1 to 5) FOR NIT RAIPUR		

**** NIT Raipur have custom/exsices exemption certificate.**

Total Bid price in Indian currency_____

In words: _____

Name_____

Business Address

Note:

(a) The cost of optional items shall be indicated separately.

Signature of Bidder

Annexure-5

Price Schedule Form: Price schedule for goods being offered from abroad in currency other than INR

(Separate form to be used for each item offered)

Name of the Bidder/Tenderer:

Name & Model No of offered good:

Tender No.:

S. No.		Price per unit in ()
1	Country of origin	
2	FOB (named port of shipment) Or FCA (named place of delivery)	
3	Freight and Insurance up to Indian Airport/port	
4	Total Price at Indian Airport /port (2+3)	
5	**Custom charges (please mentioned %)	
6	Custom clearance and other charges if any (with breakup)	
7	Inland Charges for Insurance & transportation to NIT Raipur	
8	Installation, commissioning and training Charges, if any	
9	If any other charges (Please Specify)	
	Total Price (FOR NIT Raipur) (Sum of S. No 1 to 9)	

**** NIT Raipur have custom/exsices exemption certificate.**

Total Bid price in foreign currency: -----words: _____

(a) Indian agents name & address _____

(b) The cost of optional items shall be indicated separately-----

Signature of Bidder

Annexure-6**DEVIATION STATEMENT FORM**

The following are the particulars of deviations from the requirements of the tender specifications:

CLAUSE	DEVIATION	REMARKS (INCLUDING JUSTIFICATION)

Signature of Bidder

Annexure-7 (Please put this annexure at the top of the tender document)**Bidder's information & Check list**

1. Name of the Firm:

2. Type of the firm: (Proprietorship, Pvt Ltd, Public Ltd, Partnership etc.)

3. Address of the firm:

4. Contact detail: Phone No.:

Mob No. :

Fax No.

E mail:

5. Name of the authorised signatory:

6. EMD detail : Instrument No.

Date :

Amount:

Issuing Bank name & branch detail:

Check List (Please enclose the copy of the following & tick as per applicability)

1. Proof of registration of the firm:

2. Authorisation certificate of dealership:

3. PAN card in Firm's name:

4. Sales tax certificate:

5. Commercial tax certificate:

6. Service tax certificate:

7. Proof of registration with any central govt . organisation :

8. Purchase orders issued by any central govt organisation.

Signature of Bidder