

## NATIONAL INSTITUTE OF TECHNOLOGY SIKKIM

Ravangla Campus, Barfung, South Sikkim 77139

[www.nitsikkim.ac.in/](http://www.nitsikkim.ac.in/) (Ph): 03595-260042

Tender No: NITS /05/Electronics Communication/Lab Eq. Inst./2014-15.

Date: 27.01.15

**Item no: 1-POWER SUPPLY**

**Item no: 2- TRAINER KITS FOR COMMUNICATION LAB.**

*(For Contracts value estimated to cost less than Rs.25lakhs)*

<b>Closing Date &amp; Time for submission of bid</b>	19.02.2015 ; 4 pm
<b>Opening Date &amp; Time (Technical bid)</b>	20.02.2015 ; 11 am
<b>Bid to be submitted to</b>	Assistant Register, National Institute of Technology Sikkim Ravangla Campus, Barfung Block, South Sikkim 737139.
<b>Place of opening of bid</b>	Conference Hall, National Institute of Technology Sikkim, Ravangla Campus, Barfung, South Sikkim, 737139
<b>Tender fee</b>	500 (non refundable) in form of a Demand Draft drawn in favour of DIRECTOR, NIT Sikkim
<b>Earnest Money Deposit (EMD)</b>	18000 /- (Eighteen Thousand only) for item no. 1 & ` 12,000 (Twelve Thousand only ) for item no. 2 in the form of a Demand Draft drawn in favour of DIRECTOR, NIT Sikkim payable at Ravangla, South Sikkim, and valid for a period of 45 days beyond the final bid validity period

To,

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National Institute of Technology (NIT) Sikkim, Ravangla, South Sikkim invites most competitive bid for following goods/equipments. The bid documents for technical bid and price bid separately should be sent directly to the undersigned under Sealed Cover marked "Tender Reference No., Date", and "The Due Date:

Sl. No.	Brief description of goods/equipments	Quantity	Place of Delivery	Installation required , if any
1	Power Supply (detailed specification attach at Annexure-B	15 no	NIT Sikkim	Yes
2	Trainer Kits for Communication Lab (detailed specification attach at Annexure-B	18 no	NIT Sikkim	Yes

The bidders are requested to read the tender document carefully and ensure compliance with all specifications/instructions herein. Noncompliance with specifications/ instructions in this document may disqualify the bidders from the tender process.

**Assistant Register**

National Institute of Technology Sikkim  
Ravangla Campus, Barfung Block,  
South Sikkim 737139.

## Instructions to Bidders

The technical and financial bids should be quoted separately and put in different sealed envelopes marked “**Technical bid**” and “**Financial bid**” as applicable **for each item** and are to be put in separate envelope, which should be properly sealed. The respective EMD as per items mentioned above and Tender fee should be enclosed in the **technical bid** in the form of A/C payee DD in favour of “**Director, NIT Sikkim**”.

1. The financial bid should include the cost of main equipment/item and its accessories. If there is any separate cost for installation, warranty extension etc. that should be quoted separately.
2. The quotations shall be submitted in a sealed envelope duly marked “Tender reference no, Date and due date in the corner of the envelope.
3. The printed literature and catalogue/brochure giving full technical details should be included with the technical bid to verify the specifications quoted in the tender. The bidders should submit copies of suitable documents in support of their reputation, credentials and past performance. The rates should be quoted in figures (typed or printed) and cutting/Erasing or white inking should be avoided. The final amount should be in figures as well as in words. If there are overwriting, they should be duly initialled, failing which the bids are liable to be rejected. No alternate price will be entertained in the quotation.
4. All tender documents should have to be sent through courier, speed post or registered post only or may be dropped in the tender box at NIT Sikkim.
5. Quotation received after the closing date/time will not be considered.
6. While sending rates, the firm shall give an undertaking to the effect that “*the terms/conditions mentioned in the inquiry letter/Tender Notice against which the rates are being given are acceptable to the firm.*” In case the firms do not give this undertaking, their rates will not be considered.
7. The supplier/firm must be either original equipment manufacturer (OEM) or authorized dealer/sole distributor of quoted items, the certificate to this effect must be attached.
8. The quantity shown against the item is tentative and may vary as per dynamic requirement of the Institute.
9. In the event of any dispute or difference(s) between the vendee Institute (NIT Sikkim) and the vendor(s) arising out of non-supply of material or supplies not found according to specifications or any other cause whatsoever relating to the supply or purchase order before or after the supply has been executed, shall be referred to “The Director, NIT Sikkim”, Sikkim who may decide the matter himself.
10. All tenders in which any of the prescribed conditions is not fulfilled or any condition is put forth by the tenderer shall be summarily rejected.
11. If the successful bidder fails to supply the goods/equipments within stipulated time, then the EMD may be forfeited.
12. Successful bidder shall have to deposit PBG of 10% after the P.O. is endorsed to the suppliers else Security deposit shall be deducted from the final payment for the warranty period.

**The technical and financial bids should be addressed to**

**Assistant Register**

National Institute of Technology Sikkim, Ravangla Campus,  
Barfung Block, South Sikkim 737139. ram.nitsikkim@gmail.com

**The Technical bid will be opened on 20.02.2015 at 11 AM.** The bidders or their authorized representative may also be present during the opening of the Technical Bid, if they desire so, at their own expenses.

**Price bids of only those bidders will be opened whose technical bids are found suitable by the committee appointed for the purpose.** Date and time of opening of price bids will be decided after the committee has evaluated technical bids. In exceptional situation, an authorized committee may negotiate price with the qualified bidder quoting the lowest price before awarding the contract.

**General Terms and conditions:**

**Clarifications:**

In case the bidder requires any clarification regarding the tender documents, they are requested to contact Surajit Kundu, (e-mail: [surajit.kundu@nitsikkim.ac.in](mailto:surajit.kundu@nitsikkim.ac.in)), Assistant Professor, NIT Sikkim on or before 15.2.2015.

**Pre – Qualification Criteria:**

- a. Bidders should be the manufacturer / authorized dealer. Letter of Authorization from original equipment manufacturer (OEM) on the same and specific to the tender should be enclosed.
- b. An undertaking from the OEM is required stating that they would facilitate the bidder on a regular basis with technology/product updates and extend support for the warranty as well. In case of proprietary items, suitable declaration documents from the manufacturer to be submitted.

**Prices:**

The Prices quoted should be inclusive of all taxes or duties, packing, forwarding, freight, insurance, delivery and commissioning etc. at destination site (NIT Sikkim, Ravangla, Sikkim). **Prices should be quoted separately inclusive and exclusive of Customs/Excise Duty.** The rates shall be firm and final. Nothing extra shall be paid on any account. The Environment Cess of 1% on Total cost shall be payable by the Supplier to the Sikkim Govt. Road permit shall be provided by the NIT Sikkim.

**Validity:**

The bid should be valid for acceptance for a period of 120 Days. The Bidders should be ready to extend the validity, if required.

**Delivery:**

The Equipment should be delivered and installed within the period as specified in the purchase order and be ready for use within 12 weeks of the issue of purchase order unless otherwise prescribed.

**Liquidated Damage:**

If the bidder fails to deliver and place any or all the Equipment or perform the service by the specified date, penalty at the rate of 1% per week of the total order value subject to the maximum of 10% of total order value will be deducted.

**Warranty**

Bidders must give the comprehensive onsite warranty as required from the date of successful installation of Equipment against any manufacturing defects and also give the warranty declaration that *“everything to be supplied by us hereunder shall be free from all defects and faults in material, workmanship and shall be of the highest quality and material of the type ordered, shall be in full conformity with the specification and shall be complete enough to carry out the experiments, as specified in the tender document.”*

Any deviation in the material, and the specifications from the accepted terms may liable to be rejected and the bidders need to supply all the goods in the specified form to the satisfaction / specifications specified in the order / contract and demonstrate at the their own cost.

**BID PROPOSAL SHEET****Annexure A**

(ON THE LETTER HEAD OF THE BIDDER)

**To**

**Assistant Registrar**  
National Institute of Technology Sikkim  
Ravangla Campus, Barfung Block,  
South Sikkim 737139.

**Subject: "SUPPLY & INSTALLATION OF POWER SUPPLY AND TRAINER KITS FOR COMMUNICATION LAB." at NIT Sikkim, Ravangla Campus, Barfung Block, South Sikkim 737 139.**

Dear Sir,

We, the undersigned Tenderer, having read and examined in detail the specifications as specified in this document in respect of Supply and Installation of SUPPLY & INSTALLATION OF POWER SUPPLY AND TRAINER KITS FOR COMMUNICATION LAB. at NIT Sikkim, Ravangla Campus, Barfung Block, South Sikkim 737 139. do hereby propose to supply the required products and services.

<b>Tender No:</b>				
<b>Tender Fee : Submitted</b>		YES/NO (Please strike off whatever is not applicable)		
Amount	Mode	Date of Issue	Name of Bank	Valid up to
	Demand Draft			
<b>EMD : Submitted</b>		YES/NO (Please strike off whatever is not applicable)		
Amount	Mode	Date of Issue	Name of Bank	Valid up to
	Demand Draft			

(i) **BID PRICING:** We further declare that the prices stated in our proposal are in accordance with your Terms & Conditions in the bidding document. We further understand that the quantities as specified in this Tender may increase or decrease at the time of Award of Purchase Order as per the requirements of NIT Sikkim.

(ii) **QUALIFYING DATA:** We confirm that we satisfy the qualifying criteria and have attached the requisite documents as documentary proofs. In case you require any further information/documentary proof in this regard during evaluation of our bid, we agree to furnish the same in time to your satisfaction.

(iii) **CONTRACT PERFORMANCE SECURITY:** We hereby declare that in case the contract is awarded to us, we shall submit the performance Guarantee Bond in the form of Bank Guarantee for the amount mentioned in tender document of the total ordered value.

(v) **PAYMENT TERMS:** We hereby declare that in case the contract is awarded to us, we agree with payment terms specified in the tender documents.

(vi) **CERTIFICATE AND DECLARATION:**

- a) I/We certify that no addition/modification/alteration has been made in the Original Tender Document. If at any stage addition /modification /alteration is noticed in the Original Document, I/We will abide by the terms and conditions contained in the original tender document, failing which NIT Sikkim reserves the right to reject the tender and/or cancel the contract
- b) It has been certified that all information provided in tender form is true and correct to the best of my knowledge and belief. We hereby declare that our proposal is made in good faith, without collusion or fraud. No forged /tampered document(s) are produced with tender form for gaining unlawful advantage. We understand that NIT Sikkim is authorized to make enquiry to establish the facts claimed and obtain confidential reports from clients/Manufacturer.
- c) In case it is established that any information provided by us is false / misleading or in the circumstances where it is found that we have made any wrong claims. Further NIT Sikkim is also authorized to blacklist our firm/company/agency and debar us in participating in any tender/bid in future.
- d) I / We assure the Institute that neither I / We, nor any of my /our workers, will do any act which is improper / illegal during the execution in case the tender is awarded to us.
- e) I / We assure the Institute that I / We will NOT be outsourcing any work specified in the tender document, to any other firm.
- f) Neither I / We, nor anybody on my / our behalf will indulge in any corrupt activities /practices in my /our dealing with the Institute.
- g) Our Firm / Company / Agency is not been blacklisted or banned by any Govt. Department, PSU, University, Autonomous Institute or any other Govt. Organization.
- h) I/We certify that, I have understood all the terms & conditions as indicated in enquiry of the tender document, and hereby accept all the same completely.
- i) I/We, further certify that I/We, possess all the statutory /non-statutory registrations, permissions, approvals, etc., from the Competent Authority for providing the requisite services,
- j) We understand that you are not bound to accept the lowest or any bid you may receive.
- k) I/We hereby declare that this tender on acceptance communicated by you shall constitute a valid and binding contract between us.
- l) I/We certify that the submitted quotation is duly paginated and contains from page no. 1 to .....

Date:

Signature and Seal of the Manufacturer/Bidder



	<p><b>Experiment Trainer board that Contains:-</b>  A self contained trainer  Super heterodyne Receiver  Frequency Range : 980 KHz to 2.060 MHz  Intermediate Frequency (IF) : 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  Functional blocks indicated on board mimic.  Input-output and Test points provided onboard.  Built in DC power supply.  Fully documented student work book &amp; operating manual.  8 Switched Faults.  <b>Experiments:-</b>  Study of DSB &amp; SSB AM reception &amp; detection by diode /product detectors  Study of AGC  Study of Receiver tuned circuits  Study of Sensitivity, Selectivity &amp; Fidelity of Receiver</p>	<b>2</b>		
	<p><b>Experiment Trainer board that Contains:-</b>  Input - Output and Test points provided onboard.  Built in D C power supply.  8 switched faults.  Audio Oscillator : With adjustable amplitude &amp; frequency (300 Hz - 3.4 KHz)  Two Types of FM Modulator :  1. Reactance Modulator (with carrier frequency adjustment)  2. Varactor Modulator (with carrier frequency adjustment)  Mixer / Amplifier : Allows FM input signal to be amplitude modulated by a noise input prior to demodulation, with gain adjustment.  Transmitter Output Frequency. : 455 KHz  Five Types of FM Demodulator :  1. Detuned Resonant Detector  2. Quadrature Detector  3. Foster - Seeley Detector  4. Ratio - Detector  5. Phase Locked Loop Detector  Low Pass Filter Amplifier : 3.4 KHz cut off frequency. (with adjustable gain)  Effect of noise on the detection of FM signal may be investigated.  <b>Experiments:-</b></p>	<b>1</b>		

	<p>Study of Frequency Modulation using Varactor modulator  Study of Frequency Modulation Using Reactance Modulator  Study of Operation of Detuned Resonant Circuit  Study of Operation of Quadrature Detector  Study of Operation of Phase-Locked Loop Detector  Study of Operation of Foster - Seeley Detector  Study of Operation of Ratio Detector</p>			
	<p><b>Experiment Trainer board that Contains:-</b>  Analog waveform : Sine wave of Frequencies of output of 250Hz, 500Hz, 1 KHz, and 2 Khz. With Adjustable Amplitude of 0-4Vp-p  Onboard circuits : Analog Sample Circuit/output  Sampling Frequencies : 4,8,16,32 Khz. With Amplitude of 5V.  Sample &amp; Hold Circuit /output  Low Pass Filter  Analog Sample Circuit/Output,  Sample &amp; Hold Circuit/Output.  <b>Experiments:-</b>  Study of Pulse Amplitude modulation and demodulation using Natural Sampling  Study of Pulse Amplitude modulation and demodulation using Flat Top Sampling  Study of Pulse Position modulation and demodulation using Natural Sampling and Flat Top Sampling  Study of Pulse Width modulation and demodulation using Natural Sampling and Flat Top Sampling</p>	<b>1</b>		
	<p><b>Experiment Trainer board that Contains:-</b>  Provides Sine waveform output using IC 8038, Frequency variable from 20 Hz.-20 KHz. in three steps,  Amplitude variable up to Maximum 2V p-p,  Provides Carrier waveform output of 50 KHz and Max. 5V p-p,  FM -modulator circuit using IC 8038,  FM -Demodulator using PLL method by using IC 565.  Frequency and Amplitude adjustments possible.  <b>Experiments:-</b>  Study of Modulating signal  Study of Frequency Modulation  Study of Frequency Demodulation</p>	<b>1</b>		
	<p><b>Experiment Trainer board that Contains:-</b>  Sine Wave Generator, DC Source,  Sampling Frequency Generator,  PCM - modulator circuit using IC 4066,  PCM - Demodulator using 7416 &amp; DAC0800.  <b>Experiments:-</b>  Study of PCM Modulation</p>	<b>1</b>		

	Study of PCM Demodulation Study of ADC Study of DAC			
	<b>Experiment Trainer board that Contains:-</b> Provides Sine waveform output using IC TL084, Fixed Frequency of 250Hz, Amplitude variable up to Maximum 10V p-p, DELTA -modulator circuit using IC 74193 UP DOWN Counter and DAC-0800 , DELTA -Demodulator using IC TL084 <b>Experiments:-</b> Study of Modulating signal Study of Delta Modulation Study of Delta Demodulation	<b>1</b>		
	<b>Experiment Trainer board that Contains:-</b> On-board Carrier generation circuit (Sine waves synchronized to transmitter data). On-board in phase and quadrature phase carrier for QPSK modulation. Different data conditioning formats NRZ (L), NRZ (M), RZ, Biphasic. (Manchester), Biphasic (Mark), AMI, RB, differentially encoded dibit pair. FSK, PSK, ASK ,DPSK & QPSK carrier modulation. Variable carrier and modulation Off-Set. Variable carrier gain. On-board Unipolar to Bipolar conversion. On-board data inverter. <b>Experiments:-</b> Study of Conversion of NRZ data to other data formats NRZ(L), NRZ(M) RZ, AMI, RB, Biphasic (Manchester), Biphasic (Mark), Differentially encoded dibit pair Study of following Carrier Modulation Techniques and their comparison-ASK, FSK,PSK & QPSK	<b>1</b>		
	<b>Experiment Trainer board that Contains:-</b> 7 different data reconditioning formats NRZ (M), RZ, AMI, RB Biphasic (Manchester), Biphasic (Mark), differentially encoded dibit to NRZ data. ASK, FSK, PSK, DPSK & QPSK carrier demodulation. Output gives 2 Channels TDM multiplexed data output. On - Board Biphasic Clock recovery circuit. On - Board data squaring circuit and differential decoder. On - Board Butterworth filters - 4th Order (2 nos.) <b>Experiments:-</b> Study of Conversion of different data formats to NRZ data format. Study of various Carrier Demodulation Techniques (ASK, FSK, PSK ,DPSK & QPSK)	<b>1</b>		
	BPSK Modem: Simulation and Error probability evaluation kit	<b>1</b>		

	Linear block codes-generation and detection kit	<b>1</b>		
	Cyclic encoder and decoder kit	<b>1</b>		
	Differential encoder and decoder kit	<b>1</b>		
	Digital microwave links kit: Microwave Test Bench Klystron based	<b>1</b>		
	<p><b>Experiment Trainer board that Contains:-</b>  On-board pulse generator.  4 Analog input channels sampled and time division multiplexed.  Pulse duty cycle selectable.  Internal/External sampling selectable.  4 Channel De-multiplexer.  Generation of clock at receiver by PLL System.  4th Order Butterworth L.P. filter.</p> <p><b>Experiments:-</b>  Study of Time Division Multiplexing and Demultiplexing using Pulse Amplitude modulation and demodulation  Study of TDM Pulse Amplitude modulation and demodulation With Channel Identification Information  Study of TDM Pulse Amplitude modulation and demodulation using PLL method</p>	<b>1</b>		
	<p><b>Experiment Trainer board that Contains:-</b>  1.Data Source:- Data rate : 30 Kbps; Word length : 8 bit ;NRZ Format;Clock frequency : 30 KHz,  2.PN Sequence Generator:- Data rate : 240 Kbps; Word length : 15 bit ;NRZ Format;Clock frequency : 240 KHz,  3.Audio Signal Generator : 3.4 KHz (variable amplitude &amp; Frequency,  4.Carrier Generators : 1.44 MHz (Sinusoidal),  5.DSSS Generator : By EX-ORing PN Code &amp; Data,  6.Analog Modulators :Binary Phase Shift Keying (BPSK)Modulator; Pulse Width Modulator,  7.Analog De-Modulators :Binary Phase Shift Keying (BPSK)Modulator; Pulse Width Modulator,  <b>EXPERIMENTS:-</b>  1. To study theory of CDMA DSSS Modulation &amp; Demodulation,  2. To generate CDMA-DSSS signal,  3. To demodulate CDMA-DSSS signal using BPSK,  4. To study pseudo random bit sequence generation</p>	<b>1</b>		
	<p><b>Experiment Trainer board that Contains:-</b>  In built regulated power supply  On board Digital Data signal generator to generate any binary input-Word length: 8 bit;Word clock frequency: 240 kHz  Data format NRZ (Non Return to Zero)</p>	<b>1</b>		

	<p>On board Pseudo Random Bit Signal generator to generate pseudo random bit sequence signal Bit length: 15 bits  Direct sequence spread spectrum (DSSS) generator and decoder  On board analog signal generator variable upto 3.4khz  Carrier generator: 1.44MHz  Modulator: Binary Phase Shift Keying  Modulator;Pulse Width Modulator  Demodulator : Binary Phase Shift Keying  Demodulator;Pulse Width Demodulator  <b>Experiments:-</b>  To study theory of CDMA DSSS modulation &amp; Demodulation  To generate CDMA-DSSS signal  To demodulate CDMA-DSSS signal using BPSK  To study pseudo random bit sequence generation.</p>			
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We agree to supply the above goods/equipments in accordance with the technical specifications for a total contract price of \_\_\_\_\_ within the period specified in the Invitation for Quotations.

We also confirm that the normal commercial warrantee/guarantee of \_\_\_\_\_ months shall apply to the offered goods.

Date:

Signature and Seal of the Manufacturer/Bidder

Note:

1. Preference will be given to ISO 9001-2000 certified manufacture/supplier, who can ensure the manufacturing of the machine as per the required testing standards/tender specifications within the specified tolerance limit.
2. Bidders should provide copies of original Memorandum and Articles of Association, defining the constitution of legal status, place of registration and place of business of the company.

**ANNEXURE-C****PRICE BID**

(ON THE LETTER HEAD OF THE BIDDER)

SlNo	Brief Description of goods/equipments	Quantity	Quoted price in Rs.	Total Amount (in words)
1	Power Supply	15 no.		
2	Trainer Kit for Communication Lab	18 no.		
	Taxes & other levies Sl no 1			
	Taxes & other levies Sl no 2			

We agree to supply the above goods in accordance with the technical specifications for a total contract price of \_\_\_\_\_ within the period specified in the Invitation for Quotations.

We also confirm that the normal commercial warranty/guarantee of \_\_\_\_\_ months shall apply to the offered goods.

Date: \_\_\_\_\_ Signature and Seal of the Manufacturer/Bidder

Note:

1. Preference will be given to ISO 9001-2000 certified manufacture/supplier, who can ensure the manufacturing of the machine as per the required testing standards/tender specifications within the specified tolerance limit.
2. Bidders should provide copies of original Memorandum and Articles of Association, defining the constitution of legal status, place of registration and place of business of the company.

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**ANNEXURE-D**
**PROFORMA FOR DIRECT PAYMENT/TRANSFER TO BANK ACCOUNT BY NIT SIKKIM**

Sno	Particulars	Information
1	Firm (Beneficiary) Name	
2	Please enclose a cancelled cheque and copy of PAN card. Cancelled cheque & PAN card is to be submitted only once	
3	Complete Bank Account No. of the Firm [beneficiary]. [in case of change in bank account vendor should write to Account Office]	
4	Bank Name	
5	Bank Address	
6	IFSC Code no	
7	Mobile no (for SMS)	
8	Email ID (for information)	

We undertake that all information provided above is correct and NIT Sikkim will not be responsible in case of any error on the part of firm.

[Seal and Signature of the firm]