



Bundelkhand Institute of Engineering & Technology, Jhansi

Kanpur Road Jhansi, Uttar Pradesh – 284128

Email: teqip@bietjhs.ac.in, Phone: 0510-2320321, Website: bietjhs.ac.in

INVITATION FOR QUOTATION

TEQIP-III/2018/biej/Shopping/35

14-Jun-2018

To,

Sub: Invitation for Quotations for supply of Goods

Dear Sir,

1. You are invited to submit your most competitive quotation for the following goods with item wise detailed specifications given at Annexure I,

Sr. No	Brief Description	Quantity	Delivery Period(In days)	Place of Delivery	Installation Requirement (if any)
1	Analog Modulation and Demodulation Trainer Kit	3	30	BIET, Jhansi	Yes
2	ASK, FSK, BPSK, DBPSK Modulator and Demodulator	3	30	BIET, Jhansi	Yes
3	Delta Modulation & Demodulation Trainer	3	30	BIET, Jhansi	Yes
4	Digital Trainer Kit With Seven Segment Display	1	30	BIET, Jhansi	Yes
5	EC- Antena trainer system for dipole,yagiuda, horn, parabolic, helical	2	30	BIET, Jhansi	Yes
6	EC-4 Bit Parallel adder using 7483IC	2	30	BIET, Jhansi	Yes
7	EC-Digital Trainer Kit including 4 bit Adder, subtractor, flip-flop, ttl,sipo,piso,pipo and siso Shift register kit(4 bit)	4	30	BIET, Jhansi	Yes
8	Electronics Trainer	3	30	BIET, Jhansi	Yes
9	Error correction and hamming code development system	3	30	BIET, Jhansi	Yes
10	Line coding kit	3	30	BIET, Jhansi	Yes
11	Mux and De-Mux Kit	4	30	BIET, Jhansi	Yes
12	PAM, PWM, PPM Modulation	3	30	BIET, Jhansi	Yes

	and demodulation Trainer				
13	PCM Coding and Decoding	3	30	BIET, Jhansi	Yes
14	PLL 565 Frequency Demodulator Kit (Frequency Modulation and Demodulation Trainer)	3	30	BIET, Jhansi	Yes
15	QPSK Trainer Kit	3	30	BIET, Jhansi	Yes
16	Signal Construction and Reconstruction Trainer Kit	3	30	BIET, Jhansi	Yes
17	Solar Equipment	1	30	BIET, Jhansi	Yes
18	Time Division Mux. & Demux Kit	1	30	BIET, Jhansi	Yes

2. Government of India has received a credit from the International Development Association (IDA) towards the cost of the **Technical Education Quality Improvement Programme[TEQIP]-Phase III** Project and intends to apply part of the proceeds of this credit to eligible payments under the contract for which this invitation for quotations is issued.
3. Quotation,
 - 3.1 The contract shall be for the full quantity as described above.
 - 3.2 Corrections, if any, shall be made by crossing out, initialing, dating and re writing.
 - 3.3 All duties and other levies payable by the supplier under the contract shall be included in the unit price.
 - 3.4 Applicable taxes shall be quoted separately for all items.
 - 3.5 The prices quoted by the bidder shall be fixed for the duration of the contract and shall not be subject to adjustment on any account.
 - 3.6 The Prices should be quoted in Indian Rupees only.
4. Each bidder shall submit only one quotation.
5. Quotation shall remain valid for a period not less than **30** days after the last date of quotation submission.
6. Evaluation of Quotations,

The Purchaser will evaluate and compare the quotations determined to be substantially responsive i.e. which

 - 6.1 are properly signed ; and
 - 6.2 confirm to the terms and conditions, and specifications.
7. The Quotations would be evaluated for all items together.
8. Award of contract:

The Purchaser will award the contract to the bidder whose quotation has been determined to be substantially responsive and who has offered the lowest evaluated quotation price.

 - 8.1 Notwithstanding the above, the Purchaser reserves the right to accept or reject any quotations and to cancel the bidding process and reject all quotations at any time prior to the award of contract.
 - 8.2 The bidder whose bid is accepted will be notified of the award of contract by the Purchaser prior to expiration of the quotation validity period. The terms of the accepted offer shall be incorporated in the purchase order.
9. Payment shall be made in Indian Rupees as follows:
 - Delivery and Installation - 90% of total cost**
 - Satisfactory Acceptance - 10% of total cost**

10. All supplied items are under warranty of **12** months from the date of successful acceptance of items.
11. You are requested to provide your offer latest by **12:00** hours on **03-Jul-2018** .
12. Detailed specifications of the items are at Annexure I.
13. Training Clause (if any) **Yes**
14. Testing/Installation Clause (if any) **Yes**
15. Information brochures/ Product catalogue, if any must be accompanied with the quotation clearly indicating the model quoted for.
16. Sealed quotation to be submitted/ delivered at the address mentioned below,
Bundelkhand of Engineering & Technology Kanpur Road, Jhansi, Uttar Pradesh, 284128
17. We look forward to receiving your quotation and thank you for your interest in this project.

(Dr. Mukesh Shukla)
Nodal Officer Procurement
TEQIP-III

Annexure I

Sr. No.	Name of Equipment	Detailed Specification	
1	EC-4 Bit Parallel adder using 7483IC	Trainer kit is able to demonstrate Binary Adder & Subtractor. It may contain:-Based on IC's:7483 (4-bit adder).7474(Dflip-flop). 74283(xor gate). 8-input switches to give input as 1or 0.,1-switch to select adder or Subtractor., Band Switch to preset every flip-flop. 1-switch to reset all flip-flops.Clock generator block & Pulsar Section. Power Supply Section using 7805 IC.Operating Voltage: 220V AC Test points and Patch cords.	
2	Analog Modulation and Demodulation Trainer Kit	<p>The Package system contains the Analog Transmitter Trainer and the Analog Receiver Trainer. There Specs are as below::</p> <p>DSB/SSB AM Transmitter Trainer ::--A self contained trainer.Functional blocks indicated on board mimic.Input - output and test points provided onboard.Built in DC power supply.</p> <p>Fully documented student work book & operating manual.8 Switched faults.Crystal controlled carrier frequency.On - board audio, modulator, carrier frequency generation, antenna & speaker.</p> <p>Experiments:-Study of carrier frequency generation.Study of DSB & SSB AM generation & Transmission.Study of Transmitter circuits.Study of Modulation index.DSB/SSB AM Receiver Trainer:-- 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</p> <p>3. Local oscillator 4. Beat frequency oscillator 5. IF amplifier 1 6. IF amplifier 2</p> <p>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.</p> <p>Fully documented student work book & operating manual.8 Switched Faults. Experiments:-</p> <p>Study of DSB & SSB AM reception & detection by diode /product detectors. tudy of AGC</p> <p>Study of Receiver tuned circuits Study of Sensitivity, Selectivity & Fidelity of Receiver</p>	
3	EC- Antena trainer system for dipole,yagiuda, horn, parabolic, helical	Generator	750 MHz approx. (Output adjustable)
		Tone Generator	1 KHz approx (output adjustable)
		Directionable Couple	Forward & Reverse (selectable)

		<table border="1"> <tr> <td>Matching Stub</td> <td>Slider Type</td> </tr> <tr> <td>Antenna Rotation</td> <td>0-360 deg. Resolution 1 deg.</td> </tr> <tr> <td>Receiving Antenna</td> <td>Folded dipole with reflector.</td> </tr> <tr> <td>Detector Display</td> <td>Level adjustable meter.</td> </tr> <tr> <td>Power supply</td> <td>220V± 10% 50Hz, 3VA (approx.)</td> </tr> <tr> <td>Interconnections</td> <td>4mm Banana sockets</td> </tr> <tr> <td>Dimensions (Main unit)</td> <td>W520 x D300 x H120 mm</td> </tr> <tr> <td>Weight (main unit)</td> <td>2.8 kg. approx.</td> </tr> </table> <p>Dipole $\frac{1}{2}$, Folded Dipole $\frac{1}{2}$, Dipole $\frac{1}{4}$, Yagi UDA Folded Dipole (3E), Yagi UDA Folded Dipole (5 E), Yagi UDA Dipole (7E), Yagi UDA Dipole (5E), Horizontal End Fed Hertz Antenna, Horizontal End Fed Zeppelin Antenna, Ground Plane Antenna, Ground Plane Antenna, Horn Antenna, Ground Plane Antenna Ground Plane with Reflector & Director Slot Antenna $\frac{1}{2}$ Loop Antenna , Helix Antenna $\frac{1}{2}$ Phase Array $\frac{1}{4}$ Phase Array Combined Collinear Array Log Periodic Antenna Rhombus antenna Cut Paraboloid Reflector antenna $3\frac{1}{2}$ Dipole Antenna Broadside Array</p> <p>Current Probe Mounting stands BNC-Tee BNC-BNC adapter M BNC-BNC adapter F BNC-BNC cable Screwdriver Operating manual Student workbook Radiation Pattern Plotting software Polar graph Antenna fabrication kit Power cord Accessories case</p>	Matching Stub	Slider Type	Antenna Rotation	0-360 deg. Resolution 1 deg.	Receiving Antenna	Folded dipole with reflector.	Detector Display	Level adjustable meter.	Power supply	220V± 10% 50Hz, 3VA (approx.)	Interconnections	4mm Banana sockets	Dimensions (Main unit)	W520 x D300 x H120 mm	Weight (main unit)	2.8 kg. approx.
Matching Stub	Slider Type																	
Antenna Rotation	0-360 deg. Resolution 1 deg.																	
Receiving Antenna	Folded dipole with reflector.																	
Detector Display	Level adjustable meter.																	
Power supply	220V± 10% 50Hz, 3VA (approx.)																	
Interconnections	4mm Banana sockets																	
Dimensions (Main unit)	W520 x D300 x H120 mm																	
Weight (main unit)	2.8 kg. approx.																	
4	ASK, FSK, BPSK, DBPSK Modulator and Demodulator	<p>The development boards must be designed around a FPGA with associated circuitry, for the realization of advance digital communications. The system must have facility for digital data inputs and outputs, along with switches and indicators.</p> <p>Facility for various test points provided.</p> <p>on boards USB with reprogramming facility of FPGA thru JTAG Header.</p> <p>16x2 LCD Display.</p> <p>With reprogramming facility</p> <p>Hardware reset switch to refresh process.</p> <p>Clock Generation of 10KHz output Data Clock and serial data test point.</p> <p>Test points to measure and test signals.</p> <p>On board programming facility for development.</p> <p>Switches 13nos with logic Led indicators.</p> <p>Data generator : 8-bit data Generator DIP switches.</p> <p>On board 3.3v and 5v power supply provision with test points.</p> <p>Facility for FSK –modulator /Demodulation</p> <p>Facility for ASK–modulator /Demodulation</p> <p>Facility for BPSK, DBPSK –modulator /Demodulation</p> <p>Facility for the BER Calculation..</p>																
5	Delta Modulation & Demodulation Trainer	<ul style="list-style-type: none"> • Schemes: Delta Modulation, Adaptive Delta Modulation, Sigma Delta Modulation 1st order. • Xilinx FPGA Spartan 6 based Reprogrammable Trainer. 																

		<ul style="list-style-type: none"> • Crystal Frequency 25MHz. • Slide switches for scheme selection. • 8 bit DAC and ADC • Sampling frequency 8, 16, 32, 64 kHz through slide switches. • Hardware reset switch. • Sin, Triangle, Square, Variable DC Signal through Potentiometer. • Individual frequency selections for signals 500 Hz, 1 KHz 2 KHz 3KHz using slide switches. • 4th order Butterworth Low pass filter with cut off frequency of 3 KHz, 2nd order Butterworth low pass filter with cut off frequency of 3 KHz. • On board 16*2Lcd Display <p>Test point for sample and hold outputs and the final modulated output, demodulated output.. PC to PC Communication. Optical Transmitter and Reciever Section.</p>
6	Electronics Trainer	<p>Mother Board-Onboard DPMs provided with mode/range selection.((A) DC volt: 2V/200V- 1No.(B) DC current: 2mA/200mA - 1No,(C) DC Volts/Current : 20V/200mA - 1No.,Onboard moving iron meters provided for (A) AC Current : 1 AMP - 1No. (B) AC Voltage : 15V- 1No.Onboard speaker : 8 Ohms, 0.5 Watt (1No.) Onboard POTS : 1K - 1No,1M - 1No..) Panels:: (R-S Flip-flop, 'D' flip-flop, 'T' flip-flop, 'J-K' flip-flop, Master-slave J-K flip-flop, Binary Counter, Rotary feed back application of counter, Decade counter, Shift registers: Shift left/Right/Ring counter, Parallel mode, Twisted ring counter, Johnson Counter)-01, (Multiplexer, Decoder / Demultiplexer , BCD to seven segment decoder driver, Tristate logic, Encoder)-01.(Study of TTL ,CMOS characteristics, Schmitt gate Circuits)-01.</p>
7	EC-Digital Trainer Kit including 4 bit Adder, subtractor, flip-flop, ttl,sipo,piso,pipo and siso Shift register kit(4 bit)	<ul style="list-style-type: none"> ➤ High level, high quality digital-analog trainer. ➤ Solder-less breadboard, LCD based measurement. ➤ DC power supply ➤ Fixed DC Output: $\pm 5V$, $\pm 12V$ @500mA ➤ Variable DC Output: Dual 0~30V, 0~ -30V @ 500mA ➤ AC power supply:5~0~5VAC, 12~0~12VAC ➤ Potentiometers: 1Kohm, 10K ohm ➤ USB meter to measure voltage (MV) 2 channels and current (ma) ➤ Two digits of 7 segment LED display. ➤ Two pulse switch, Four channel adaptor. ➤ Sixteen bit I/O Data switches, Speaker. ➤ Sixteen bit LED display ➤ Function generator Frequency range: 1Hz - 100 KHz Amplitude 0 ~ 5 Vpp ➤ ZIF Sockets: 40-pin, 28-pin, 20-pin. ➤ On board Channels: 1 for Current & 2 for Voltage. <p>PC Interface with GUI.; Solder-less breadboard. :(a)Adder/ Subtractor ICIC 7483 (8 pin)-20;IC 7483 (4 pin)-50;(b)EXORIC7486-100;(c)NAND (2input)IC7400-</p>

		150;(d)ANDIC7408-100;(e)OR IC7432-100;(f)NOTIC7404-100;(g)NORIC7402-100;(h)NAND (3input)IC7410-100;(i)AND (3input)IC7411-100; (j)Multiplexer /De Multiplexer IC 74150-50;IC74138-25; ic of the shift register, siso,pipo,piso,sipo.
8	Line coding kit	<ul style="list-style-type: none"> • On board Sine wave frequency generator. • On board ADC and DAC up to 60MSPS and 100MSPS respectively. • JTAG Header facility for USB programming. • 8 bit toggle data switches for data input Selector switches 10 nos for data format selection, Lcd16x2 for display, Test points to analyze different signals • On board power supply 3.3 and 5v with test points • Data Format – NRZ (Mark), NRZ (L), Biphase (Manchester), • Biphase (Mark), ,RB, AMI,ASK / FSK / PSK Modulation Techniques • Uni-polar to Bipolar & Bipolar to Uni-polar conversion • 8 bit variable NRZ-L pattern Data Simulator. • Test points in each section.
9	Mux and De-Mux Kit	<p>Trainer kit is able to demonstrate 8-bit multiplexer..</p> <p>It may contain:-</p> <ul style="list-style-type: none"> ➤ Based on 74151 MUX IC. ➤ 8-Input Switches with led's and test points. ➤ 2-Output Led's with test points here second is not of first. ➤ 3-input select lines with led's. ➤ 1-enable line containing led. ➤ All led's are to determine logic state. ➤ On board truth-table given. <p>On Board Power Section with led's with 5V DC supply</p> <p>Trainer kit is able to demonstrate 8-bit Demultiplexer.</p> <p>It may contain:-</p> <ul style="list-style-type: none"> ➤ Based on IC's: <ul style="list-style-type: none"> ➤ 74138(Demultiplexer). ➤ 7404(Not gate) ➤ 1-input led's and test point. ➤ 8-Output Led's with test points. ➤ 3-input select lines named as S0,S1,S2 all with led's. ➤ All led's are to determine logic state. ➤ On board truth-table given. ➤ On Board Power Section with led's with 5V DC supply with Vcc and GND points. <p>The setup should be supplied with PC Based Data Acquisition System of the 6 Analog Channel and 12 Digital Channel.</p>
10	PCM Coding and Decoding	<ul style="list-style-type: none"> • Audio codec: Stereo • Inputs: single ended. Based On Spartan 3 FPGA reprogrammable with lcd 16*2 DISPLAY.

		<ul style="list-style-type: none"> • Number of bits per channel : 16 bits (left and right) • Sampling rate : 64,32,16 and 8KHz • System Clock :256x (Sampling Clock) • Clock source : Onboard • Signal source : Sine, triangle. • Frequency : up to 3.3 KHz • Amplitude:0-3.3Vpp. On Board 16*2 LCD. • Output waveforms : 250Hz, 500Hz, 750Hz, and 1Khz with adjustable amplitude. This Board is Reprogrammable and rewritable. • 4th and 2nd order Butterworth Low pass filter with cut off frequency of 3 KHz. • On board : ADC and DAC , reset switch, In-Built Power Supply of with Power ON indication, Crystal frequency out.
11	PLL 565 Frequency Demodulator Kit (Frequency Modulation and Demodulation Trainer)	<p>Input - Output and Test points provided onboard.</p> <p>Built in D C power supply.8 switched faults.,Audio Oscillator : With adjustable amplitude & frequency (300 Hz - 3.4 KHz),Two Types of FM Modulator :</p> <ol style="list-style-type: none"> 1. Reactance Modulator (with carrier frequency adjustment) 2. Varactor Modulator (with carrier frequency adjustment) <p>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 :</p> <ol style="list-style-type: none"> 1. Detuned Resonant Detector 2. Quadrature Detector 3. Foster - Seeley Detector 4. Ratio - Detector 5. Phase Locked Loop Detector <p>Low Pass Filter Amplifier : 3.4 KHz cut off frequency. (with adjustable gain)</p> <p>Effect of noise on the detection of FMsignal may be investigated.</p> <p>Experiments:-</p> <p>Study of Frequency Modulation using Varactor modulator</p> <p>Study of Frequency Modulation Using Reactance Modulator</p> <p>Study of Operation of Detuned Resonant Circuit</p> <p>Study of Operation of Quadrature Detector</p> <p>Study of Operation of Phase-Locked Loop Detector</p> <p>Study of Operation of Foster - Seeley Detector</p> <p>Study of Operation of Ratio Detector</p>
12	Digital Trainer Kit With Seven Segment Display	Trainer Kit-04;(On board Facility to interface Data with the PC using On board PC Interface present On Board. It should be supplied with software to observe all of the waveforms in the software. Digital voltmeter with

		<p>range 0-200v dc, Data Switches:16 Nos. Dual color indicators to observe high/low logic, standard BNC socket facility to connect cro Directly with trainer ,DC Power supply: $\pm 5V$, $\pm 12V$, 0-12V (variable) with 1 A .Pulse Generator: square ,triangle & sine Frequency range:1Hz to 700KHZ in steps, Leds at input as well as at output. Fine tuning for particular frequency selection, Variable in between, Amplitude: 0 TO 5V,On Board Voltmeter Astable Pulse generation: 2 Nos.(Push to On), Solderless IC devices for experimentation, Seven Segment Display: 4 Nos,1Buzzer,On board ZIF socket experimentation 20 Pin-6, 40Pin-1. Power: 220V\pm10%, 50HZ.Power Consumption: 3.2 VA (Approx),Weigth:3.2kg.(approx,.) The IC which should be supplied with it are:: (a)Adder/ Subtractor ICIC 7483 (8 pin)-20;IC 7483 (4 pin)-50;(b)EXORIC7486-100;(c)NAND (2input)IC7400-150;(d)ANDIC7408-100;(e)OR IC7432-100;(f)NOTIC7404-100;(g)NORIC7402-100;(h)NAND (3input)IC7410-100;(i)AND (3input)IC7411-100;(j)Multiplexer /De MultiplexerIC 74150-50;IC74138-25;</p>
13	Solar Equipment	<ul style="list-style-type: none"> <input type="checkbox"/> DC Voltmeter (0-100V), DC Ammeter (0-5A) <input type="checkbox"/> Rheostat as load (800E, 2.5A), <input type="checkbox"/> Battery 12v , Standalone Inverter. <input type="checkbox"/> Multi-channel DPM for temperature display, *50Wx2 photo-voltaic (PV), <input type="checkbox"/> Spectral response & Carrier Lifetime Measurement, AC load , DC load <input type="checkbox"/> 50x50mm x2 nos. solar cells for series and parallel connections experiments, <input type="checkbox"/> Dimmers to set intensity of halogen 500w halogen lamp as source of light <input type="checkbox"/> Energy Meter for energy measurement <input type="checkbox"/> RTD Temperature PID Control. <input type="checkbox"/> Data Logger for energy measurement and data logging in pc. Lux meter <input type="checkbox"/> Til table frame for angle measurement of solar panel <p>Software CD, User Manuals. Data Logger Specification:: (Data Logger with 8 channel Memory Card for Storage of data using FAT32 Protocol High rate/Low rate/Trigger Mode/Channel Selection/Buzzer Alarm options are available,600 samples per second to 1 sample per week.,Build in Real Time Clock,AC and DC both supply are supported with Battery Facility,Data Output in ms Excel sheet ach records are stored with time and Date Stamp Real Time Variable Data Logging,4*4 hex keypad and menu driven system to operate the trainer,20*4 LCD Display Size::162x122x65mmEnclosure::Hand Held/Wall Mountable.) This Data Logger is PC independent and can be used in Field using its</p>

		<p>Battery Backup. □Experiments::</p> <p>□Voltage Measurement in Open Circuit solar panel Current Measurement in Open Circuit solar panel To operate DC Load (Fan/ LED)To measure the Voltage and current of DC Load To operate AC Load (Bulb) using inverter circuit Study of Components of Solar Panel Trainer Measurement of the energy consumption by Using the energy meter (various parameter voltage , current ,power factor , kilo watt and kwh)Study of the charging and discharging status of battery To study the spectral response char. Of light To study the temperature controlled PID To study the different parameter 's of energy meter and data logging of parameters in pc through lab view To control the intensity of the light source using dimmer panel To verify the light intensity using lux meter</p>
14	PAM, PWM, PPM Modulation and demodulation Trainer	<p>Scheme selection switches.Xilinx FPGA based Trainer.</p> <p>Signal Generator:- Provide Sine, triangle, square waveforms of 250 Hz, 500 Hz, 1 KHz, and 2 KHz variation by slide switches. On Board lcd 16*2 with reprogrammable facility.</p> <p>Amplitude of 0 – 3.3Vp-p.Amplitude adjustments for waveforms generated from signal generator using potentiometer. Switchable sampling clock of 4, 8, 16, 32 KHz.</p> <p>Reset switch. On board crystal frequency. On-board features sample & hold output, flat top output, Natural Sampling Output, modulated output, demodulated output.4th and 2nd order Butterworth Low pass filter with cut off frequency of 3 KHz. Various blocks printed on PCB. Modulation Techniques PAM modulation & demodulation PWM modulation & demodulation PPM modulation & demodulation. All interconnections are made using 2mm banana Patch cords.Test points are provided to analyze signals at various points. All ICS are mounted on IC Sockets.</p> <p>In-Built Power Supply of with Power ON indication. Attractive Wooden enclosures. Set of 2mm Patch cords for interconnections User's Manual with sample experimental programs.</p>
15	Time Division Mux. & Demux Kit	<p>No. of Channels 4. Two analog, two digital.</p> <p>Xilinx FPGA based Trainer.</p> <p>On board Crystal Frequency 25MHz.</p> <p>8 bit DAC and ADC.</p> <p>With reprogramming facility</p> <p>Sampling frequency 8 KHz, 16 KHz, 32 KHz, 64 KHz through slide switches.</p> <p>Signal Generator:- Provide Sine, triangle, square, random binary sequence.</p> <p>Individual frequency variations for signals 500 Hz, 1 KHz, 2 KHz, 3KHz using slide switches.</p> <p>4th and 2th order low pass Butterworth filter (frequency 3KHz).</p> <p>On board power supply, reset switch, Audio input and output.</p> <p>Mode selection switch (Auto/Manual).</p> <p>2 select lines slide switches.</p>
16	Signal Construction	Signal Generator Provides Sine, triangle waveforms output of 250Hz,

	and Reconstruction Trainer Kit	<p>500Hz, 750Hz, and 1Khz.</p> <p>On-board features Sample Circuit/Output Sample & Hold Circuit/Output. Switch able Sampling frequency.</p> <p>Duty cycle of 0-90% in steps.</p> <p>2nd& 4th order Low pass filter with cut off frequency of 3 KHz.</p> <p>8 Nos. of Switch Faults Provided.</p> <p>Block Diagram printed on PCB.</p> <p>All interconnections are made using 2mm banana Patch cords.</p> <p>Test points are provided to analyze signals at various points.</p> <p>All IC's are mounted on IC Sockets.</p> <p>On Board LCD Display 16*2.</p> <p>It should be reprogrammable using Spartan 6.</p> <p>On board ADC and DAC, reset switch.</p>
17	QPSK Trainer Kit	<p>On board 8 bit variable NRZ-L Pattern.</p> <p>Clock Frequency 195KHz.</p> <p>Di-bit data (Even data and odd data)</p> <p>Encoded even data and odd data</p> <p>780 KHz (0 degree), 780 KHz (90 degree), 780 KHz (180 degree), 780 KHz (270 degree.).</p> <p>With reprogramming facility</p> <p>Based on spartan</p>
18	Error correction and hamming code development system	<p>Lcd16x2 for display.</p> <p>8 MHz oscillator.</p> <p>Spartan-3E chip with memory</p> <p>Onboard power jack, 3.3v and 5v power supply test points.</p> <p>8 bit data input switches.</p> <p>Error generation switches with 8 bit led indicators.</p> <p>12no. indicators for data frame transmission.</p> <p>Data status indicators 12nos. for receiving data frame.</p> <p>Kit is based on advance FPGA, with memory.</p> <p>Complete Led Based visual description of various logic states.</p> <p>Error detection and error correction using 14nos of Led indicators.</p> <p>Programmable using Xilinx's FPGA, along with PROM.</p> <p>JTAG Header for facility of USB communication for programming.</p> <p>The kit must have facility of various ODD, EVEN PARITY, CRC, Check Sum and Hamming code transmission and recovery Section.</p> <p>Facility for single bit error detection and correction.</p> <p>Error generation and detection 8-bit binary data.</p>

FORMAT FOR QUOTATION SUBMISSION

(In letterhead of the supplier with seal)

Date: _____

To: _____

Sl. No.	Description of goods (with full Specifications)	Qty.	Unit	Quoted Unit rate in Rs. (Including Ex Factory price, excise duty, packing and forwarding, transportation, insurance, other local costs incidental to delivery and warranty/ guaranty commitments)	Total Price (A)	Sales tax and other taxes payable	
						In %	In figures (B)
Total Cost							

Gross Total Cost (A+B): Rs. _____

We agree to supply the above goods in accordance with the technical specifications for a total contract price of Rs. _____ (Amount in figures) (Rupees _____ amount in words) within the period specified in the Invitation for Quotations.

We confirm that the normal commercial warranty/ guarantee of _____ months shall apply to the offered items and we also confirm to agree with terms and conditions as mentioned in the Invitation Letter.

We hereby certify that we have taken steps to ensure that no person acting for us or on our behalf will engage in bribery.

Signature of Supplier

Name: _____

Address: _____

Contact No: _____