



# GOVERNMENT POLYTECHNIC, KHAMGAON

WINNER OF ISTE-NARSEE-MONJEE AWARD-2000

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Gram:- POLYTECH

Enquiry Letter

No. : GPK /Store/Inst purchase/List A/ETX/2017-18/ 2-53

Date: 25/01/2018

To,

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## QUOTATION

Sub: Quotation for purchase of equipment / furniture.  
( Due Date 2/02/2018)

Dear Sir,

Sealed Quotations are invited from eligible and interested manufacturers/  
dealers/distributors/ for the following items on the terms and conditions mentioned below.

Sr. No.	Name of the item	Name of the item with specification Specification	Quantity required	Estimated cost (Rs.)
1	Antenna trainer kit	Waveforms: SineRF Generator: 750 MHz approximately (output adjustable) Tone Generator : 1 KHz approximately (output adjustable). Directional Coupler: Forward & Reverse (selectable). Matching Stub : Slider type. Antenna Rotation: 0-360 deg. Resolution 1 deg. Antenna Rotation: 0-360 deg. Resolution 1 deg. Receiving Antenna: Folded dipole with reflector. Detector Display: Level adjustable meter Interconnections: 2 mm Banana sockets Antenna with Radiation Pattern Plotting Software and 10 Antennas RF Generator for easy experimentation with built-in modulation and DC transmitting mast, and receiving mast with detector. Experiment with different types of antennas. Antenna Fabrication kit Forward / Reverse power & SWR measurements	02	---
2	Trainer kit for Sampling theorem and PCM modulation and demodulation	STUDY OF SAMPLING THEOREM. Trainer kit suitable to demonstrates the principle of Sampling theorem which is basic of digital communication system by IC based circuit. Kit should have built in Clock generator, Pulse generator Sample & Hold circuit, Microphone Preamplifier & Filter circuit. Also provided with signal recovery section. Effect of aliasing should be demonstrated. Inbuilt DC supply and various Test points. ii) PULSE CODE MODULATION. Trainer kit suitable to demonstrates the principle of pulse code modulation. Kit should consist of Crystal based clock generator, Divider circuit, A to D converter and parallel to serial converter. Trainer should give the pulse code modulated signal at output. Inbuilt DC supply and various Test points. iii) PULSE CODE DEMODULATION Trainer kit suitable to demonstrates the principle of pulse code demodulation using IC based circuit. Kit consists of serial to parallel converter, D to A converter, filter and amplifier. This unit should be matched with PCM trainer & original modulating	02	---

Sr. No.	Name of the item	Name of the item with specification Specification	Quantity required	Estimated cost (Rs.)
3	Trainer kit for DPCM modulation and demodulation	Onboard DPCM Transmitter and receiver. Onboard Audio input & output processing .circuits Clock and entire control Signal section. Detailed signal processing circuit with complete data and control signal flow Signal generator block. Functions : Sine and Square O/P frequency range: 300Hz to 3.4 KHz Audio blocks: Audio I/P and O/P processing circuits Control signals : RW for ADC, reset. Latch enables, OEs. Sampling frequency : 8 KHz Total Bits per sample :5 bits including sign bit Compared to 8 bit PCM :3 bits per sample	02	---
4	Trainer kit for delta and adaptive delta modulation	Input Channel: Time Division Multiplexed .Serial Crystal Frequency: 6.400 MHz. Sampling Clock Frequency: 50, 100, 200 & 400 KHz (Switch selectable). On board Generator: Synchronized and Adjustable Integrator: Four integrator gain settings .Normal, X 2, X 4, X 8 Low Pass Filter : Fourth order Butterworth (Cut Off Frequency 4.8 KHz).	02	---
5	Line code trainer for UPNRZ, PRZ, BPRZ, PNRZ, UNRZ, Manchester and Differential	Trainer kit for Study of Data Formats. Technical Specification .Data Formatting and Carrier Modulation Transmitter .Crystal Frequency : 4.096 MHz. Data formats : NRZ (L), NRZ (M), RZ, AMI, RB. Biphase (Manchester), Biphase (Mark). On-board carrier : Sine waves synchronized to transmitted data at 1.6 MHz, 960 KHz, (0 deg. phase) 960 KHz, (90 deg. phase) Power Supply : 220/110V, 50/60 Hz.	02	---
6	Trainer kit for ASK, PSK, FSK modulation and Demodulation	Trainer kit for Study of keying techniques .For Study of Amplitude Shift Keying Study of Frequency Shift Keying for Study of Phase Shift Keying for Study of Differential Phase Shift Keying for Study of Quadrature Phase Shift Keying Study of Differential Quadrature Phase Shift Keying Technical Specifications Carrier Demodulation and Data Reformatting Receiver  Carrier Demodulation : ASK - Rectifier	02	---
7	Trainer kit for QPSK modulation and Demodulation	Trainer kit shall demonstrate principle of QPSK modulation and demodulation	02	---
8	Trainer kit for QAM modulation and Demodulation	Trainer kit shall demonstrate principle of QAM modulation and demodulation	02	---
9	Trainer kit for DPSK modulation and demodulation	Trainer kit shall demonstrate principle of DPSK modulation and demodulation	02	---
10	Trainer kit for FDM and TDM and demultiplexing	Trainer kit shall demonstrate principle of FDM and TDM multiplexing and DE multiplexing	02	---
11	CDMA – DSSS signal generator and demodulator	Trainer kit shall demonstrate principle of CFMA DSSS signal generation and demodulation	02	---

Sr. No.	Name of the item	Name of the item with specification Specification	Quantity required	Estimated cost (Rs.)
12	FHSS signal modulator and demodulator	On-board data generators and PRN sequence generators. BCD rotary switches for Data Selection Tap selectable PN sequence generators Multiple data rate and chip rate selection Variable processing gain selection Slow and Fast frequency hopping demonstration PN sequence driven Frequency synthesizer with non-overlapping frequency channel assignment Data Rates :16 Kbps, 8 Kbps and 4 Kbps Word Length :8 bits Data Format :NRZ (Not Return to Zero) Chip Rates :240 KHz, 120 KHz, 60 KHz, (DSSS CDMA)16 KHz, 8 KHz and 4 KHz (for FHSS) Sequence Type :Maximum Length Sequence Sequence Pattern :Selectable through feedback taps in LFSR array. BFSK Frequencies :100 KHz for mark and 50 KHz for space . Frequency Synthesizer Output : Sinusoidal Frequency Synthesizer :1.6 MHz, 1.2 MHz, 800 KHz and 400 KHz . Channels Hopping Channels :Four Number of Hops :Variable depending upon data rate and chip rate per Data Periods	02	---
13	Trainer kit for MOSFET	Trainer kit suitable to plot I/p, O/P characteristic of MOSFET with inbuilt DC supply and required digital meters (4 No.) and various Test point	02	---
14	Trainer kit for UJT	Trainer kit suitable to plot V I.characteristic of UJT with inbuilt DC supply and required digital meters (2 No.) and various Test point	02	---
15	Trainer kit for single tuned amplifier	Trainer kit suitable to plot the frequency response of an Transistorized L-C tuned (single) circuit amplifier. Centre frequency above 400 KHz.( any other suitable frequency) Inbuilt DC supply and various Test points.	02	---
16	Trainer kit for RC Phase shift oscillator	Trainer kit suitable to produce oscillations of frequency 10 KHz ( any other suitable frequency) Inbuilt DC supply and various Test points.	02	---
17	Trainer kit for crystal oscillator	Trainer kit suitable to produce oscillations of frequency 10 KHz ( any other suitable frequency) Inbuilt DC supply and various Test points.	02	---
18	Trainer kit for negative feedback amplifier	Trainer kit suitable to plot the frequency response with and without Voltage series feedback, Voltage shunt, Current series and current shunt feedback. Inbuilt DC supply and various Test points.	02	---
19	Temperature ON OFF controller	TEMPERATURE TRANSDUCER WITH INSTRUMENTATION and ON/OFF CONTROLLER USING R.T.D. Trainer kit suitable to demonstrate the principle of ON/OFF type controller using heating process. Trainer should consist of RTD (standard PT-100) type transducer with instrumentation, ON/OFF controller (Relay based) with facility to set required temperature, Bulb heater having facility to vary heater power, 3 ½ digit digital indicator, Set temperature control, In built DC Power supply etc. Unit operates on 230V, 50 Hz AC supply.	01	---
20	Trainer kit for BJT series voltage regulator	Trainer kit suitable to study the principle of transistorized series voltage regulator used in regulated power supplies. Measure the line & load regulation. Inbuilt unregulated DC input & various test points	02	---

Sr No.	Name of the item with specification		Quantity required	Estimated cost (Rs.)
	Name of the item	Specification		
21	Trainer kit for SCR	Trainer kit suitable to plot anode - cathode characteristics and gate characteristics of silicon controlled Rectifier (SCR). 0 - 10V and 0 - 150V DC power supply of required current rating & 4 no of digital voltmeter & current meter are inbuilt in the kit.	01	4000.00
23	Trainer kit for DIAC	Trainer kit suitable to plot forward and reverse characteristics of Diac. 0-50 V DC power supply & required digital voltmeter & current meter is inbuilt in the kit.	02	6000.00
24	Trainer kit for SCR triggering circuits	STUDY OF SCR TURN ON METHODS. Trainer kit suitable to study the basic triggering methods of SCR like Resistance triggering circuit; R-C triggering circuit. Should be provided with SCR, Lamp load (15W) & isolation transformer. Trainer kit should demonstrate effect of variation of resistor and capacitor in R & RC triggering circuit on firing angle of SCR. SCR should be operated on 230V, 50Hz AC supply	01	4000.00
25	Trainer kit for Synchronised UJT triggering	STUDY OF SCR TURN ON METHODS. Trainer kit suitable to study the SCR triggering using Synchronised UJT triggering. Trainer kit should demonstrate effect of variation R on firing angle in Synchronised UJT triggering circuit.	01	4000.00
26	Trainer kit for Single phase half wave controlled rectifier	SINGLE PHASE HALF WAVE CONVERTER trainer kit should consists of mains synchronized triggering circuit using UJT for half wave (1 SCR) 1 phase converter circuit. In built R & RL load, isolation transformer of suitable rating should be provided.	01	3500.00
27	Trainer kit for Single phase full wave controlled rectifier	SINGLE PHASE FULL WAVE CONVERTER trainer kit should consists of mains synchronized triggering circuit using UJT for full wave (2 or 4 SCR) 1 phase converter circuit. In built R & RL load, isolation transformer of suitable rating should be provided.	02	8000.00
28	Trainer kit for CLASS C Complementary symmetry Commutation	Trainer kit to calculate output voltage across class-C complementary Symmetry commutation circuit.	01	4000.00
29	Trainer kit for step-up chopper	Trainer kit to calculate output voltage of step-up chopper for different values of duty cycles	02	7000.00
30	Trainer kit for step-down chopper	Trainer kit to calculate output voltage of step-down chopper for different values of duty cycles	02	7000.00
31	Trainer kit for single stage and Multistage BJT amplifier	Trainer kit suitable to plot Frequency response of 2 stage common emitter transistor amplifier circuit. Facility to measure $A_1$ & $A_1 \times A_2$ . Inbuilt DC supply and various Test points.	02	6000.00
32	Trainer Kit for FM Modulator using IC 566	AC Source:600Hz-2.5KHz, FM Modulator: VCO, Test Points, Circuit diagram engraved on front panel with transparent rear panel	03	12000.00
33	Trainer Kit for FM Demodulator using IC 564/565	AC Source:600Hz-2.5KHz, FM Demodulator: VCO, Test Points, Circuit diagram engraved on front panel with transparent rear panel	03	12000.00
34	AM Receiver Trainer Kit	DSB/SSB AM Receiver Trainer: The trainer should have following features- Variable capacitor tuning, onboard local oscillator, RF Amplifier, Mixer, IF Amplifier, Detectors, Audio Output Receiving Antenna, AGC and speaker, On Board Block diagram, Frequency Range:980KHz-2060KHz and IF:455KHz	02	10000.00

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Sr. No.	Name of the Item with specification		Quantity required	Estimated cost (Rs.)
	Name of the item	Specification		
35	PAM Trainer Kit	PAM Trainer Kit suitable to demonstrate the principle of PAM using op-amp IC based circuit with facility to vary depth of modulation, inbuilt power supply and various test points.	02	---
36	PWM Trainer Kit	PWM Trainer Kit suitable to demonstrate the principle of PWM using TIMER IC based circuit with facility to vary depth of modulation, inbuilt power supply and various test points, effect of change in carrier and modulating signal should be studied, facility to measure pulse width under steady input should be provided.	02	---
37	PPM Trainer Kit	PPM Trainer Kit suitable to demonstrate the principle of PPM using IC based circuit with facility to vary depth of modulation, inbuilt power supply and various test points.	02	---

#### TERMS AND CONDITIONS

- The bid/quotation should be submitted in two bid format. ( Technical bid & Commercial Bid)
  - The first envelope will contain Technical specifications of the product, technical literature/ leaflet and other documents mentioned below. It is mandatory to the suppliers to submit following documents without which your quotation will not be considered.
    1. Covering Letter for tender on the company letter head mentioning official address, Contact No, e Mail address and website (if available) address.
    2. Registration letter of suppliers establishment ( company/ organization)
    3. EMD in this regard (3% of the quoted cost or Re. 5000 whichever is minimum) to be paid in the form of DD of Nationalized Bank in favour of Principal, Govt. Polytechnic, Khamgaon OR Exemption certificate from competent authorities, if exemption is claimed.
    4. GST registration certificate/ Number
    5. GST Clearance Certificate/ GST Challan for last quarter of the Financial year. (Paid up to December 2017)
    6. Authorization/ Distributorship certificate from manufacturer. Proof of permission to manufacture the equipment/ item mentioned in the quotation from competent authorities (to be submitted if the bidder is not a manufacturer).
    7. Technical literature / leaflet of the make and model no of equipment quoted.
    8. Under taking by supplier confirming quality of Equipment / Machinery
    9. Under taking by supplier towards supply of equipment within prescribed date / period and post sales services.
- (Additional document may also be asked by undersigned for confirming the details.)*

- The second envelope will contain the financial bid in which the all inclusive rates F.O.R. Destination will be written and signed with the stamp of the establishment in the following format.

Sr. No.	Name of the item with specification		Quantity required	All inclusive cost per unit	All inclusive cost for quantity mentioned.
	Name of the item	Specifications			

Date -

(Signature)

Place -

Rubber Stamp of Organisation

**Important Instructions**

- The two envelopes should be sealed with a mention of the type of envelope (technical / Financial), Reference no., Date of opening the quotation on the front side of the envelope. These two envelopes should be sealed in a third envelope by giving heading "Quotation for supply of "Electronics & communication Engg. Department Equipment" and writing complete address of the undersigned. (Address :Principal, Government Polytechnic, Khamgaon , Jalamb Road , Khamgaon, Dist : Buldana (M.S.) Pin 444 303)
- The quotations should reach the undersigned on or before dt 02/02/2018
- The material will be checked at this institute.
- No extra charges will be paid for cartage, packing etc. for the material rejected and replaced
- Quotations will be opened at 1.00 AM/ PM on Date 03/02/2018 at office of the Principal of Institute.
- Rates should be valid for 6 months from the date of confirmation letter.
- Materials should be quoted for standard makes and minimum pkgs.
- Delivery to the consignee has to be effected within 1 week from the date of issue of purchase order or on or before the prescribed date (if any)
- The undersigned reserves the right to accept or reject any offer or all offers without assigning any reason thereof.
- The said process is subjected to the necessary approval from higher authorities.



Principal  
Principal  
Govt. Polytechnic Khamgaon  
Khamgaon

- Copy to :1) Hon. Director ,Directorate of Technical Education M. S. Mumbai for information please. It is requested to do needful for uploading the same on Hon. DTE's website as per instructions issued.
- 2) Hon. Joint Directorate of Technical Education Amravati Region, Amravati for information please. It is requested to do needful for uploading the same on Hon JDTE's website as per instructions issued.
- 3) Head of Electronics & Communication engineering Departments for information and necessary follow up.
- 4) Suppliers ,as per list attached herewith
- 5) Programmer, Govt. Polytechnic, Khamgaon. through Head of Computer Engg Department for uploading on Institute website with immediate effect.
- 6) Institute's Main Notice board for display.