GOVERNMENT POLYTECHNIC, KHAMGAON
WINNER OF ISTE-NARSEE-MONJEE AWARD-2000
☎ (07263) 56644 (O), 54609 (R), Fax - (07263) 52278

E-mail: gpolykhamgaon@rediffmail.com   Gram:- POLYTECH

No. : GPK /Store/inst purchase/ETX/2019-20/**19**   Date: 02/01/2020

QUOTATION

To,

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Sub: Quotation for purchase of equipment
(Due Date 21 /01/2020)

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 with specification		Quantity required
	Name of the item	**Specification**	
1.	Analog Lab with high quality bread board on board DC fix, variable and ac power supply	On board DC fix, variable and ac power supply, function and modulation generator, continuity tester, high quality bread board, toggle switches potentiometers &Optional: ready to use on board	01
2.	Trainer kit for Sampling theorem and PCM modulation and demodulation	STUDY OF SAMPLING THEOREM. Trainer kit suitable to demonstrate 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 demonstrate 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 with specification		Quantity required
	Name of the item	Specification	
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: R/W 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 AdjustableIntegrator: Four integrator gain settings .Normal, X 2, X 4, X 8Low Pass Filter : Fourth order Butterworth (Cut Off Frequency 4.8 KHz).	02
5	Line code trainer for UPNRZ, PRZ ,BPRZ , PNRZ , UNRZ.Manchestor 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	CDMA – DSSS signal generator and demodulator	Trainer kit shall demonstrate principle of CDMA DSSS signal generation and demodulation	02

Sr. No.	Name of the item with specification		Quantity required
	Name of the item	Specification	
10	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 Hoping Channels :Four Number of Hopes :Variable depending upon data rate and chip rate per Data Periods	02
11	Trainer kit for MOSFET	Trainer kir 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
12	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
13	Trainer Kit For Crystal Oscillator Using Transistor	Trainer kit suitable to produce oscillations of frequency 10 KHz (any other suitable frequency) Inbuilt DC supply and various Test points.	04
14	Trainer Kit For Temperature On Off Controller Kit	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
15	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.	01

Sr. No.	Name of the item with specification		Quantity required
	Name of the item	Specification	
16.	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 A1& A1xA2. Inbuilt DC supply and various Test points.	02
17.	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
18.	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
19	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
20.	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
21.	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
22	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
23.	Arduino Universal Development Board	The Arduino Uno R3/R4 Kit with Arduino Uno R3/R4 board and other important accessories. With following facility on Advanced Arduino UNO R3/R4 Board Button to control LED. Control LEDs by digital output pins Relay Control DC motor direction Stepper motor interfacing provision 16x2 LCD display interfacing DAC0808 interfacing Simple RGB LED on an ARDUINO UNO.	10

24.	8051 universal development platform	Core 8051 MCU clocked at 11.0592 MHz User can enter opcode using on board 20 Hex keypad, For large program user can use on board PC, based USB Programmer. On board LCD for both programming mode and run mode Every pin is marked in order to make work easier, Interconnection for modules : 20pin FRC cables, usb cables ,Software CD, Connecting Patch Cords, Product Tutorial, Setup >Experiment Trainer Board that Contains:- Includes :-1.Power Supply : 5 V DC 2.signal generator:100Hz, 3.various test points, connecting patch cord, product tutorial	02
25.	Input Interface Module For 8051 UDP	experiments:- 1-4X4 Matrix keypad Interface, 2-ASCII keypad interface, 3-Four input sensing switch interface, >Experiment Trainer board that Contains:- 1. PC based programming., 2.Expansion connectors for plug in with Microcontroller unit and prototyping area 3.Various test point >20 pin FRC cable >Connecting Patch Cords	02
26.	ADC/DAC Module For 8051 Udp	Experiments:- 1-To study interfacing 8 input 8 channel ADC Interface, 2-To study interfacing DAC Interface 3-To study timing and control signals of ADC and DAC pin to pin study of MCU >Experiment Trainer board that Contains:- 1.PC based programming 2.Expansion connectors for plug in with Microcontroller unit and prototyping area 3.Various test point >20 pin FRC cable >Connecting Patch Cords >Product Tutorial	02
27.	Computer Interface Module For 8051 UDP	Experiments:- 1-To study basics of serial communication and MCU connections to serial port 2-To study MCU connections to parallel port 3-To study of synchronous and asynchronous serial communication. >Experiment Trainer board that Contains:- 1.RS 232 interface using Rx/Tx of MCU for Uploading / Downloading 2.USB interface 3.PC based Programming 4.Expansion connectors for plug in with microcontroller unit and prototyping area 5.Various test point >20 pin FRC cable	02

		>RS-232 Serial cable >USB cable >20 pin FRC cable >Connecting Patch Cords >Product Tutorial	
28.	Display Interface Module For 8051 UDP	Experiments:- 1-To study implementation analysis 2-To study and analyze the interfacing of 16x2 LCD 3-To study implementation analysis and interfacing of seven segment display >Experiment Trainer board that Contains: 1.Display : 16x2 LCD 2.Seven segment display : Four 3.Led bar graph : one 4.Various test point >20 pin FRC cable >Product Tutorial Experiments:- 1-To study implementation analysis and interfacing of Stepper motor 2-To study direction and angle controlling of stepper motor 3-To Study DC motor interfacing, PWM Servo motor Servo motor >Experiment Trainer board that Contains:- 1.Stepper motor : +12 V 2.DC motor : +12 V 3.Servo motor : +5 V 4.Various test point >20 pin FRC cable >Product Tutorial	02
29.	Real Time Clock Module For 8051 UDP	Experiments:- 1-16x2 characters LCD Interface 2-DS1307-RTC interface. 3-Latch switch interface 4-Buzzer and LED Interface >Experiment Trainer board that Contains:-1.Display : 16x2 LCD 2.RTC : DS1307 3.RTC Interface type : I2C 4.Buzzer : +5 V dc 5.LED : +5 V DC , Battery : 3Vdc CMOS 5.LED : +5 V DC , Battery : 3Vdc CMOS 4.Various test point >20 pin FRC cable >Product Tutorial	02

TERMS AND CONDITIONS

- The bid/quotation should be submitted in **two bid format.**(Technical bid & Commercial Bid)

- **The first envelope(Technical Bid) 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 etc.

2. Registration letter of suppliers establishment (company/ organization)

3. GST registration certificate/ Number

4. GST Clearance Certificate/ GST Challan for last quarter of the Financial year.(**Paid up to July 2019**)

5. 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*). Desired*

6. Technical literature / leaflet (manufacturer /supplier) of the make and model no of equipment quoted.

7. Under taking by supplier confirming quality of Equipment / Machinery

8. 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 (or Commercial) bid** in which the all-inclusive rates / taxes/GST etc & 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 -

Place -

(Signature)

Rubber Stamp of Organisation

- The two envelopes should be sealed with a mention of the type of envelope (technical / commercial or 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 as below. (**Address :**Principal, Government Polytechnic, Khamgaon , Jalamb Road , Khamgaon, Dist : Buldana (M.S.) Pin 444 303)

- The quotations should reach the undersigned on or before date **21/01/2020**

- The material will be checked at this institute.

- No extra charges will be paid for cartage, packing etc. for the material rejected and replaced if any

- Quotations will be opened at 1.00 ~~AM~~/ PM on **Date 22/01/2020** 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

Govt. Polytechnic, 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 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 website as per instructions issued.

3) Head of Electronics Department for information and n a

4) Suppliers as list attached herewith through email and by post

5) Shri Ambatakar , programmer through Registrar , Govt. Polytchnic , Khmgon for uploading on Institute website.

6) Institute Main Notice Board for Display