GOVERNEMNT COLLEGE OF ENGINEERING, KARAD
(An Autonomous Institute of Government of Maharashtra)

Dist. Satara, Maharashtra, India, PIN: 415124
Tel.: 91- 02164- 271711, 272414, 272415(P), 271712(R)
Fax No.: 91- 02164- 271713
Web: http://www.gcekarad.ac.in.

No. CEK/ ENTC/ADC /2019-2020/3815

DATE – 12 /11/2019

To,

Subject – Quotation for Advanced Digital Communication Trainer System

Dear Sir,

With reference to above, I have to request you to kindly quote your rates for below mentioned material for **Electronics and Telecommunication Engineering Department** "of this Institute so as to reach this office on or before 23/11/2019 till 5.00 pm, the details are as given below –

Sr. No.	Description	Qty.
1	**Advanced Digital Communication Training System**	04 sets

Your quotation should be valid for at least 30 days from the date of opening. The quotation should be sent to **"The Principal, Government College of Engineering, Karad"** in sealed envelope superscripted with word **"Quotation of Advanced Digital Communication Lab for Electronics and Telecommunication Engineering Department" due on 12 /11/2019.**The Institute does not bind itself to accept or reject the quotation. Please note that if there is any over-writing in the quotation, the said term will not be taken into consideration.

Terms and Conditions:

1. Quotation validity for at least 90 days from the date of opening.
2. Delivery period 4 weeks from date of supply order.
3. Payment 100% after delivery and satisfactory acceptance.
4. Warranty 12 months or more.
5. Total amount will be considered for final call for quotation.
6. Pre-Demonstration required

The quotation will be opened on 25 **/11/2019 at 03.00 p.m.**
Specifications are as enclosed.

Thanking you.

for Principal,
Govt. College of Engineering, Karad.

Detailed Specification of **Advanced Digital Communication Lab.**

Advanced Digital Communication Training System

Advanced Digital Communication System should be a single board system based on VLSI technology for the study of various digital communication techniques.

The Board should have various test points for the students to view intermediate signals on an Oscilloscope. It should be accompanied with a Learning Resource Software consisting of Animations explaining various Digital Modulation Techniques like QPSK Modulation / Demodulation, DQPSK Modulation and Demodulation, ADPCM, QAM etc and Experiments for the Students to understand the basic concepts of Digital Communication

Specifications:

Clock & Signal generation:

- On-board 500Hz sine wave with amplitude 0 to 4V.
- On-board Synchronized Sine wave of 512 KHz (0°, 90°, 180° and 270°).
- On-board 24 bit variable data pattern (8 bit, 16 bit & 24 bit selectable @ 256 KHz).
- 16 bit switch selectable PRBS generator.
- White noise source with amplitude 0 to 2Vpp.
- Transmitter clocks: 16KHz, 32KHz, 64 KHz, 128 KHz, 256 KHz , 512 KHz & 1.024MHz.

Transmitter section:

- Data encoding:
  - Differential encoder
  - Di-bit encoder
  - Tri-bit encoder
  - Scrambler

Modulation Techniques:

- BPSK, DPSK & DEPSK modulation.
- QPSK & DQPSK modulation.
- QAM & DQAM modulation.
- DPCM & ADPCM modulation.
- Pulse Amplitude Modulation.

Coding and Decoding Technique:

- Error bit adder & inter symbol interference.
- Bit error rate measurement.(ber)
- Study of eye pattern.
- Quantization error.
- 8 BIT ADC.

Receiver section:

- Data Decoding:
  - Differential decoder
  - Di-bit decoder
  - Tri-bit decoder
  - BPSK, DPSK & DEPSK demodulation
  - QPSK & DQPSK demodulation
  - QAM & DQAM demodulation
  - DPCM & ADPCM demodulation

Constellation diagrams:

- Transmission & Reception of Band limited Pulse train in base band digital transmission system.
- Transmitter & receiver filter with selectable switch of five different bands.
- Data extraction & reception of band limited pulse train in base band digital transmission system.
- Low pass Butterworth filters.