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No.: GPK/CStore/Quot.Enq./ETTrainerKit/2025/ 198
Date 20 JAN 2025

To,
... (Interested Parties)...
.....
.....

Enquiry Letter For Trainer Kits of Basic Power Electronics Lab

Sub: Inviting sealed QUOTATIONS for Trainer Kits of Basic Power Electronics Lab.

(Due Date: 30/01/2025; 5:00 pm)

Sealed Quotations are invited from eligible and interested suppliers for the following items on the terms and conditions mentioned below. The quotation must be submitted along with necessary supporting documents as mentioned below in a sealed envelope and submitted to this office on or before the prescribed time and date mentioned.

Name of item	Specification	Quantity Required	Rate (Rs.)
Trainer Kits of Basic Power Electronics Lab	As per Annexure-A	*(As per requirement*)*	---

(* Buyer has the right to change the quantity of items as per the need and the availability of the grant/ funds. Final requirement will be provided in the supply order.)

TERMS AND CONDITIONS

1) Two packet bid system will be applicable (Technical and Commercial bids only).
2) The Quotation must be submitted in sealed envelope, in prescribed format with details of enquiry (Quotation for Trainer Kits of Basic Power Electronics Lab) super scribed on envelope. Online / email Quotations will not be accepted.
3) The Quotation including technical envelope (envelope 1) and commercial envelope (envelope 2) should be submitted to this office on or before the due date.
4) The Quotation must be submitted with necessary technical literature and other documents as mentioned below.
5) Technical Envelope-1:
   a. Covering letter with details of bidder, address, telephone number, mobile number, email ID, Name, signature and seal
   b. Type of Business Entity; manufacturer/ authorized dealer, any other (to be specified).
   c. PAN card photocopy and GSTTIN number and proof of GST paid for the last quarter.
   d. Undertaking from the bidder has not been blacklisted or debarred from supplying previously by Government.

e. Undertaking about compliance of terms and conditions mentioned.
f. Offer letter on bidder's letterhead stating make and model quoted. (This offer letter should be separate from other documents mentioned therein).
g. Technical Literature with detailed specification of the item quoted.

6) Commercial Envelope-2:
a. Price quote along with taxation, inclusions and exclusions, if any, for each item mentioned in Annexure-A.

7) Envelope-3: Envelope-1 and Envelope-2 are to sealed and packed in Envelope-3. Envelope-3 should be super scribed with "Quotations for Trainer Kits of Basic Power Electronics Lab" and addressed to the "PRINCIPAL, GOVERNMENT POLYTECHNIC, KHAMGAON". This envelope should be submitted on or before the last date and time mentioned in this document.

8) The bidder must not be a defaulter to any Government authorities and must not have been blacklisted/debarred from supplying of goods.

9) The bid must be for all-inclusive prices of the goods/ services, installation charges, demo, training, warranty and must include all taxes and levies, transportation charges, freight etc. Delivery to the consignee has to be completed within 1-2 weeks from the date of issue of supply order or as per mentioned in the supply order.

10) Rates quoted should be valid for 180 days from the last date of submission of quotation.

11) Warranty: The bidder should undertake a guarantee of material quality and the fault-free function of the items provided. Warranty of all the items should be for 2 YEAR from the date of commissioning.

12) The supplier shall be liable for all direct or indirect damages as expenses incurred by us as a result of defects of goods and repair or replace the components at his own cost during warranty period.

13) Undersigned buyer has the right to change/alter the quantity of items as per the requirement and the availability of the grant/ funds. Final requirement will be provided in the supply order.

14) **PAYMENT TERMS:** 100% Payment against delivery, installation, testing of equipment, training and working trial and satisfactory working of equipments at consigneee's place. Advance payment is not admissible.

15) Payment will be made only by Demand Draft/ Account Payee Cheque/NEFT/RTGS/ECS. Supplier should provide the bank details.

16) Undersigned buyer may cancel the purchase order in discretionary Power, without any reasons thereof.

Principal
Govt. Polytechnic, Khamgaon

Copy to:

1) Hon. Director, Technical Education, Mumbai. It is requested to publish this enquiry on website.
2) Hon. Joint Director, Technical Education, Amravati. It is requested to publish this enquiry on website.
3) Head of Department, Electronics Engg., Govt. Polytechnic, Khamgaon.
4) Central Stores Officer, Govt. Polytechnic, Khmagaon.
5) Programmer, Govt. Polytechnic, Khamgaon for uploading on Institute website with immediate effect.
6) Institute's Main Notice board for display.

Annexure-A

List of trainer kits required in Basic Power Electronics lab
(Electronics and Electrical second Year)
As per NEP / K scheme Curriculum

S no	Name of Expt	Appr Cost
1	Testing of SCR, MOSFET,IGBT , DIAC , TRIAC with V-I characteristics	
2	Performance of snubber circuit	
3	Test the R and RC triggering circuits of SCR	
4	Triggering of SCR using pulse transformer	
5	Measure output voltage by changing firing angle in synchronized UJT triggering circuit	
6	Observe and verify Input-Output waveforms of Class C-Complimentary type commutation circuit	
7	Class A (Load commutation) commutation circuit	
8	Class F (line commutation) commutation circuit	
9	Observe and verify Input-Output waveforms of half wave controlled rectifier with R, RL load and measure load voltage	
10	Voltage control using controlled rectifier	
11	Calculate firing angle and observe input-output voltage waveforms of 3-phase half wave controlled rectifier using Delta-star transformer.	
12	Operation of single phase half wave bridge inverter with R and RL load	
13	Operation of single phase full wave bridge inverter with R and RL load	
14	Measure output voltage of step-up chopper for different values of duty cycles.	
15	Measure output voltage of step-up chopper for different values of duty cycles.	
16	Measure output voltage of step-down chopper for R load	
17	Measure output voltage of step-down chopper for RL load.	
18	Measure frequency and output voltage of parallel inverter.	
20	Build / test Light dimmer circuit using DIAC-TRIAC.	

List of trainer kits required in Basic Power Electronics lab
(Electronics and Electrical second Year)

21	Build Test Emergency Light circuit using SCR.	
22	Simulation of Temperature controller using SCR.	

General / Technical Specification for all above trainer kits

1. Power electronics trainer kit should be enclosed in a sturdy box structure with connectors connection points on the board and final output provision for connecting to oscilloscope. Power Electronics trainer to be used for following experiments (to be demonstrated with the help of an active, reactive load connected on the panel): -

(a) To study AC phase control using inverse parallel connected SCR for half wave and full wave control. The user should be having control over firing angle of SCRs to demonstrate the variable AC output, which can be demonstrated on a lamp load.

(b) To study operation of step-up and step-down chopper circuit with various chopper types. The user should be having control over duty cycle (or firing pulse) to demonstrate variable DC output voltage.

(c) To study single phase cyclo-converter and static frequency conversion techniques. The user should be having control over firing pulses of switches to demonstrate variable voltage frequency output.

(d) To study the operation of DC to single phase AC inverter. The user should be having control over firing pulses of switches to demonstrate variable AC voltage output.

(e) To study advanced firing schemes and high frequency gate triggering.

(f) To study forced commutation techniques of SCR

(g) **Trainer kits shall be preferably quoted with the experiments which can be merged and performed in single trainer unit.**

Technical Specifications: -

(a) Power supplies (i) AC supply – 230V, 50Hz, 1 phase (ii) DC Supply - +12V-30V, 1A max

(b) The system should have variable load resistors (max. 100ohm, 50W) or preferably a lamp load (restricted to 50W), Inductors (max. 20mH, 1A) and capacitors (max. 500µF, 100V) for demonstration of experiments on RLC load.

(c) SCRs to be rated for a minimum of 600V, 5A with snubber circuit and other protection units placed to prevent overvoltage, over current and dv/dt failures.

(d) Provision of freewheeling diodes to show the effect on SCR converter performance with inductive load.

List of trainer kits required in Basic Power Electronics lab
(Electronics and Electrical second Year)

(e) Any additional components required for conduct of experiments

3. Salient features required for smooth conduct of the experiment: -

(a) Front panel and casing built with high class ABS/ polypropylene with overlay showing circuit and connections through sturdy banana sockets with associated patch cords.

(b) Instruction manual of the kit with detailed procedure for conduct of each experiment.

(c) Patch cords – 20 (2/4 mm thickness/SWG) – length 0.5 m.

(d) High Voltage test points to be provided with 2mm safety sockets.

(e) The trainer is to be housed in ABS Plastic cabinet.

(f) Expected size of the trainer set Length - 12"x14" and Breadth – 10"x12"