Government Women Engineering College, Ajmer,Makhupura, Nasirabad Road, Ajmer -305002

INVITATION LETTER

Package Code: TEQIP-III/2019/RJ/gwec/124 **Current Date: 10-Aug-2019**

Package Name: GWECA/ECE/I.E. Lab **Method: Shopping Goods**

To,

Sub: INVITATION LETTER FOR GWECA/ECE/I.E. Lab

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	Item Name	Quantity	Place of Delivery	Installation Requirement (if any)
1	SCR VI CHARACTERISTICS STUDY TRAINER	1	ECE, GWEC Ajmer	Yes
2	R, R-C & UJT FIRING MODULE	1	ECE, GWEC Ajmer	Yes
3	Study and test AC voltage regulators using triac, anti parallel thyristors and triac & diac.	1	ECE, GWEC Ajmer	Yes
4	SINGLE PHASE HALF & FULLY CONTROLLED BRIDGE CONVERTER	1	ECE, GWEC Ajmer	Yes
5	DC CHOPPER TRAINER	1	ECE, GWEC Ajmer	Yes
6	CONTROL SPEED OF A SINGLE-PHASE INDUCTION MOTOR USING SINGLE PHASE	1	ECE, GWEC	Yes

	AC VOLTAGE REGULATOR.		Ajmer	
7	SPEED CONTROL OF DC SHUNT MOTOR USING SCR DUAL CONVERTER	1	ECE, GWEC Ajmer	Yes
8	Single Phase Cyclo Converter	1	ECE, GWEC Ajmer	Yes
9	DC Motor Speed Control Trainer	1	ECE, GWEC Ajmer	Yes
10	DIGITAL MULTIMETER	10	ECE, GWEC Ajmer	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, initialling, 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 and the bidder shall submit the **Technical Bid and Financial Bids in separate sealed covers**, clearly super-scribing "**Technical bid for I.E. Lab"** and **"Financial bid for providing I.E. Lab"**, respectively. ***These two sealed covers shall be put in another cover which should also be sealed, signed*** *and duly super-scribed* ***"Tender for providing I.E. Lab with Package Code".***

5. Quotation shall remain valid for a period not less than **90**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:

Payment Description	**Expected Delivery Period (in Days)**	**Payment Percentage**
Satisfactory Acceptance	30	10
Satisfactory Delivery & Installation	30	90

10. Liquidated Damages will be applied as per the below:
Liquidated Damages Per Day Min %:0.10
Liquidated Damages Max %:10

11. All supplied items are under warranty of **36** months from the date of successful acceptance of items and AMC/Others is **.**

12. You are requested to provide your offer latest by **14:00** hours on **26-Aug-2019.**

13. Detailed specifications of the items are at Annexure I.

14. Training Clause (if any) **Yes**

15. Testing/Installation Clause (if any) **Yes**

16. Performance Security shall be applicable**: 5%**

17. **Original Information brochures/ Product catalogue**, if any must be accompanied with the quotation clearly indicating the model quoted for.

18. Sealed quotation to be submitted/ delivered at the address mentioned below, **Government Women Engineering College, Ajmer,Makhupura, Nasirabad Road, Ajmer -305002**

19. The bidder must submit the company details viz. **Firm Registration Certificate**, **GST Registration Certificate** and any other necessary documents duly certified by **Chartered Accountant / Notary Public** (Audited balance sheets including profit and loss accounts for the three financial years viz. 2015-16, 2016-17 & 2017-2018) along with their bid.

20. The quotation would be opened on **26-Aug-2019 at 15:00 hrs** at **TEQIP-III Office, Govt. Women Engineering College Ajmer, Rajasthan – 305002, India** in the presence of bidder representative who choose to attend the opening. The bidder representative who is present shall sign an Attendance Sheet evidencing their attendance.

21. **Only authorized dealer/ agency of Original Equipment Manufacturer (OEM)** or OEM should apply against this invitation for bid. In the case of the bidder, offering to supply goods under the bid, which the bidder does not manufacture or otherwise produce, the bidder has to provide Manufacturer's Authorization Certificate strictly as per format at **Annexure A**. Bids submitted without authorization certificate as per **Annexure A** will be summarily rejected.

22. Notwithstanding the above, the Institute reserves the right to accept or reject any quotation(s) and to cancel the process and reject all quotation(s) at any time.

23. Dispute if any shall be subjected to the jurisdiction of Rajasthan in Ajmer/Jaipur.

24. We look forward to receiving your quotation and thank you for your interest in this project.

(Authorized Signatory)
Name & Designation

Annexure I

Sr. No	Item Name	Specifications
1	SCR VI CHARACTERISTICS STUDY TRAINER	• Basic V I characteristics study trainer. • Consists of one no. TYN612 SCR with heat sink. • LM723 based 20V DC power supply for gate voltage. • One no. potentiometer used to vary the gate current • 0 - 30V DC variable power supply for anode, cathode voltage variation. • Should be supplied measuring system having built-in LED torchlight to illuminate test area • Flashing backlight as visual alert during continuity tests in dim areas • Basic measurements (Voltage, Current, Resistance, Diode, Capacitance, Frequency) • Auxiliary temperature measurement using K-type thermocouple* • One no. potentiometer used to vary the Vak. • One no high wattage fixed load resistor. • One no. toggle switch to ON/OFF gate voltage. • 230V AC input. Power ON/OFF switch
2	R, R-C & UJT FIRING MODULE	• Consists of three types of basic firing circuit to trigger SCR. • Separate sections for R - firing , RC -firing , UJT firing circuit. • 24V AC / 1AMP provided for firing circuit input voltage. • One potentiometer used to vary the firing angle of UJT firing circuit. • One potentiometer used to vary the firing angle of R - firing circuit. • One potentiometer used to vary the firing angle of RC - firing circuit. • One no. toggle switch for ON/OFF 24VAC. • Built-in LED torchlight to illuminate test area • Basic measurements (Voltage, Current1, Resistance, Diode, Capacitance, Frequency) • Auxiliary temperature measurement using K-type thermocouple* • Four No's of firing pulses terminated on the front panel for connecting external device module. (UJT firing circuit) • UJT firing circuit. • One no of SCR with snubber circuit forms half wave controlled converter circuit for checking all the three firing circuit. • 230V, 50HZ AC input, fuse provided for over load protection. • One no. of rocker switch with LED indication for power ON/OFF.
3	Study and test AC voltage regulators using triac, anti parallel thyristors and triac & diac.	This trainer module consists of two separate section a. UJT based firing circuit for SCR AC Regulator b. DIAC, R & C based firing circuit for TRIAC AC Regulator c. Universal motor as load (optional) **A.** UJT BASED FIRING CIRCUIT FOR SCR AC REGULATOR : * 24v AC for UJT firing circuit (24V AC obtained through 230/24V AC, 2A step down transformer)

		∗ One potentiometer is used to vary the firing angle ∗ Two isolated pulses for SCR ∗ Two no. of SCR with heat sink (600V,12A) provided for power circuit ∗ Power circuit input volt 0-230V AC (External) ∗ One lamp (60W or 100W) for load or universal motor optional B. DIAC, R & C BASED FIRING CIRCUIT FOR TRIAC AC REGULATOR ∗ R, C & DIAC firing for TRIAC ∗ One TRIAC with heat sink (600V/12A) ∗ 230V operation ∗ One lamp load or universal motor (Optional) ∗ One potentiometer is used to vary the firing angle ∗ Output voltage 0-230V AC • Built-in LED torchlight to illuminate test area • Basic measurements (Voltage, Current[1], Resistance, Diode, Capacitance, Frequency) • Auxiliary temperature measurement using K-type thermocouple
4	SINGLE PHASE HALF & FULLY CONTROLLED BRIDGE CONVERTER	A. Firing Module • triggering circuit. • Touch keys to select and vary the firing angle (0° - 180°). • Line synchronization achieved by step - down transformers and ZCD generator circuit. • Carrier logic implemented for SCR self - starting. One no. Toggle switch with debounce logic for pulse ON/OFF. • Pulse output terminated in the front panel for device module interface. • Speed sensor interface provision for motor control operation B. SCR Power Circuit • Power circuit consists of two no. SCR (SKKT92B16E) rating at 1200V, 90AMP two No's power diode rating at 1200V, 50AMP). • All terminals of diode and SCRs terminated on the front panel for external connection. • One no. MCB provided for mains. Fuse provided in input side. Test points to view the signals at each level.
5	DC CHOPPER TRAINER	DC Chopper Trainer • One no. of Phase control IC used for pulse generator • One no.of potentiometer used to vary firing the firing angle (0-180°) • Necessary test points and SCR input and output connectors are provided for easy studying and patching • Built-in LED torchlight to illuminate test area • Flashing backlight as visual alert during continuity tests in dim areas • Basic measurements (Voltage, Current, Resistance, Diode, Capacitance, Frequency) **Power circuit** • It consists of SCR power circuit for DC Motor Armature, Diode rectifier for FIELD circuit **Armature Circuit** • 4 Nos. of SCR with heat sink form fully controlled converter • 230V AC input • One no. of SPDT to ON/OFF power circuit input voltage

		• One no. of fuse provided for output section • All G,K terminals brought out by special connectors • Connector output terminated by banana socket for Motor Armature. **Field Circuit** • One no. 1N diode bridge rectifier (Package) provided • 230V AC Input for diode rectifier • One no. of ON/OFF switch for AC Input • Bridge output terminated by connector for motor field. One no. of LED Indicate field voltage status
6	CONTROL SPEED OF A SINGLE-PHASE INDUCTION MOTOR USING SINGLE PHASE AC VOLTAGE REGULATOR.	SINGLE PHASE AC INDUCTION MOTOR With display of speed measurement AC MOTOR SPECIFICATIONS: # Single phase induction motor # Power : 1 hp (.75KW) # Current : 7 Amps # 230V AC 50Hz input # Speed : 1390 rpm
7	SPEED CONTROL OF DC SHUNT MOTOR USING SCR DUAL CONVERTER	This set-up designed for forward and reverse speed control of DC shunt motor using SCR dual converter. It consists of, a. Dual converter firing circuit. b. Dual converter power circuit. c. DC shunt motor set up. d. Isolation transformer and field display. With display of speed measurement A. SINGLE PHASE DUAL CONVERTER FIRING CIRCUIT ∗ 8 nos. Isolated gate pulses for 'p' group and 'N' group SCR converter ∗ One DPDT switch is provided for selection of Dual converter with circulating current mode and without circulating current mode ∗ 2 nos. potentiometer to vary the Firing angle of with circulating current mode and without circulating current mode. ∗ One pulse ON/OFF switch and power ON/OFF switch is provided ∗ Necessary test points for student measurement ∗ ±15V DC & 9V AC for control circuit B. SINGLE PHASE DUAL CONVERTER POWER CIRCUIT ∗ 8 nos. of SCR with snubber protection is provided fop 'P', 'N' group converter ∗ All 'A', 'K' terminals are terminated in front panel for student patching ∗ 25 pin shielded cable for pulse input ∗ 2 nos. of 230/24V, 3A step down transformer for power circuit input AC voltage ∗ One center tapped inductor for power circuit with circulating current mode (optional) C. DC SHUNT MOTOR ∗ 0.5hp ∗ Armature voltage –48V DC, ∗ Field voltage ----- 48V DC, 0.5Amp ∗ Speed 1500rpm D. ISOLATION TRANSFORMER: ∗Used for power circuit input voltage isolation

		∗Input Voltage: 3 phase 415V AC ∗Output : 24 – 0 – 24 V AC (each phase) ∗0.5KVA capacity
8	Single Phase Cyclo Converter	• Consists of firing circuit, • SCR power circuit and load. • Line synchronized IC based linear firing circuit. • Line synchronization achieved by step -down transformer. • One no. potentiometer used to vary the firing angle (180° - 0°). • Carrier logic implemented, carrier frequency 4KHz. • One no. toggle switch with de bounce logic for pulse ON/OFF. • EPROM Based firing pulse frequency variation. • Two No's. toggle switch to select different frequency(50, 50 / 2, 50 / 3,50/ 4 Hz). • Power circuit consists of four No. SCR with fuse protection. • Anode, Cathode, Gate terminals are terminated in the front panel for user connection. • 24V AC, 1AMP provided for power circuit input with ON/OFF switch. • One no. fixed R, load provided. Center tapped inductor for power circuit. • 230V, 50Hz AC input with ON/OFF rocker switch, fuse for over load.
9	DC Motor Speed Control Trainer	**Trigger circuit :** • One no of potentiometer used to vary firing the firing angle (0-180°) • Necessary test points and SCR input and output connectors are provided for easy studying and patching **Power Devices circuit** • Four nos of SCRs rated for1200voltsVAK &25 Amps 1A • One diode for free wheeling • Each device is provided with • RC Snubber for dv/dt protection • Necessary terminals are terminated on connectors • 24volt AC, 2Amp provided for low voltage operation • In the low voltage operation the student can see thewaveform usingan Oscilloscope • One no. of fuse provided at output section for over current part. • One no. of SPDT to ON/OFF power circuit AC Input • One no. of Digital speed indicator indicate set/actual speed of motor. With display of speed measurement ANALOGPI CONTROLLER • One analog PI Controller provided for closed loop operation **LOAD** • 24V PMDC Motor
10	DIGITAL MULTIMETER	Safety Class: I CAT II 600V,Waterproof: IP20 Fuse: F1:F250mA / 250V,F2:F 10A/250V Power: 9V battery =, NEDA 1604 or 6F22 Maximum display value: 1999 Over-range indication: "1" Polarity display: " − " for negative polarity Low voltage indication: " " on the display Operating temperature: 0~40℃(32~104℉) Storage temperature: -10~50℃(14~122℉) Relative humidity: <80% RH

Altitude: <2000m
Dimension (LxWxH): 144x74x40mm
Weight(no rubber case): < than 200g
Weight(with rubber case): <= 250g
Should have following features:
Display: 2000 counts
Diode: 2.7V
Continuity Buzzer: <70+-30Ω

Data hold

Display Backlight

Low Battery Display

DC Voltage	200mV/2V/20V/200V	+-(0.5%+3)
	600V	+-(0.8%+5)
AC Voltage	200V/600V	+-(1.2%+10)
DC Current	20μA/200μA/2mA/20mA	+-(1.0%+3)
	200mA	+-(1.5%+5)
	10A	+-(3.0%+10)
Resistance	200Ω	+-(0.8%+5)
	2KΩ/20KΩ/200KΩ	+-(0.8%+2)
	2MΩ	+-(1.0%+5)

All other necessary accessories required for the proper functioning of all the above instruments/modules.

- Instruction Manual * 1 copy of each
- Probe * 1 pair
- Package * 1 piece
- 9V battery NEDA 1604 or 6F22 * 1
- Rubber case (Optional)

Annexure A

MANUFACTURER AUTHORIZATION FORM

No. _____ dated _____

To

_____
_____
_____

Dear Sir:

Package No. _____

We---------- (Name of the OEM) who are established and reputed manufacturer of _____ (*name and description of goods offered)* having factories at _____ (*address of factory) with factory registration no.* ---------- do hereby authorize M/s_____ (*Name and address of Agent)* to submit a bid, and sign the contract with you for the goods manufactured by us against the above bid.

We hereby extend our full warranty as per your invitation letter, for the goods and services offered for supply by the above firm against this Invitation for Bid.

Yours faithfully,

(Name)

(Name of manufacturers)

Note: This letter of authority should be on the letterhead of the manufacturer or OEM and should be signed by a person competent and having the power of attorney to legally bind the manufacturer.

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. _____