Institute of Engineering & Technology, Lucknow,Sitapur Road, Lucknow, Uttar Pradesh - 226021

INVITATION LETTER

IET/TEQIP-III/19/229-J

Package Code: TEQIP-III/2019/UP/ietl/283
Package Name: IET-TEQIP-ECD-LAB-10

Current Date: 05-Jul-2019
Method: Shopping Goods

Sub: INVITATION LETTER FOR IET-TEQIP-ECD-LAB-10

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	MEASUREMENT OF RESISTANCE BY WHEATSTONE BRIDGE AND MEASUREMENT OF BRIDGE SENSITIVITY	2	Institute of Engineering and Technology, Lucknow	
2	MEASUREMENT OF DESAUTY'S AND SCHEARING BRIDGE TRAINER	2	Institute of Engineering and Technology, Lucknow	
3	MAXWELL'S INDUCTANCE BRIDGE AND MAXWELL'S INDUCTANCE-CAPACITANCE BRIDGE ON A SINGLE	2	Institute of Engineering and Technology, Lucknow	
4	KELVIN'S DOUBLE BRIDGE	2	Institute of Engineering and Technology, Lucknow	
5	PRESSURE TRANSDUCER EXPLORER	2	Institute of Engineering and	

			Technology, Lucknow	
6	INSTRUMENTATION AMPLIFIER : DESIGN FOR SPECIFIC GAIN AND VERIFICATION OF CMRR	2	Institute of Engineering and Technology, Lucknow	
7	REALIZATION OF PCM SIGNAL USING ADC AND RECONSTRUCTION USING DAC USING 4-BIT / 8-BIT SYSTEMS. OBSERVE THE QUANTIZATION NOISE IN EACH CASE.	2	Institute of Engineering and Technology, Lucknow	
8	STUDY OF LOW NOISE AND LOW FREQUENCY AMPLIFIER FOR BIOMEDICAL APPLICATION	2	Institute of Engineering and Technology, Lucknow	

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.

5. Quotation shall remain valid for a period not less than **60**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:

Satisfactory Delivery & Installation and Acceptance - 100% of total cost

10. Liquidated Damages will be applied as per the below:
Liquidated Damages Per Day Min % :0.50
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 **22-Jul-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. 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, **TEQIP-III Institute of Engineering & Technology, Lucknow,Sitapur Road, Lucknow, Uttar Pradesh - 226021**

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

(Authorized Signatory)
Name & Designation
COORDINATOR
TEQIP PHASE-III
Institute of Engineering &
Technology, Lucknow-21

Annexure I

Sr. No	Item Name	Specifications
1	MEASUREMENT OF RESISTANCE BY WHEATSTONE BRIDGE AND MEASUREMENT OF BRIDGE SENSITIVITY	Study of Wheatstone Bridge. This test set has been designed to provide an accurate and sensitive instrument for measurement of Resistance. This set is entirely contained with a dry battery and a Galvanometer. A.C. supply of frequency 1KHz with variable amplitude and Galvanometer are provided. Interconnection leads for connections & comprehensive. User's Manual will explain required results.
2	MEASUREMENT OF DESAUTY'S AND SCHEARING BRIDGE TRAINER	The trainer should have following features: Complete set up with all necessaries accessories: Inbuilt Function Generator, Microcontroller based Frequency Counter, Null detector with audio amplifier and speaker.The trainer should have following Technical Specifications :Sine Wave Generator :Frequency range : Selectable: 500 Hz to 1 KHz, 1 KHz to 10 KHz, 10 KHz to 60 KHz. Amplitude control output : Sine wave : Up to 8 Vpp, Speaker: 8 Ohm, Display : LCD, fuse 500 mA, slow blow, Mains: 230 V AC ±10%, 50 Hz, Unknown Capacitors: 0.1 µF, 0.22 µF, 0.47Mf.It should performed following experiments: Determination of unknown capacitance using Desauty Bridge method, Determination of unknown capacitance using Schering Bridge method.
3	MAXWELL'S INDUCTANCE BRIDGE AND MAXWELL'S INDUCTANCE-CAPACITANCE BRIDGE ON A SINGLE	It should have following features: Illustration of both Maxwell's inductance bridge and Maxwell's inductance-capacitance bridge on a single, board Inbuilt 1 KHz sine wave generator with variable amplitude, Null detector with audio amplifier and speaker, It should have following technical specifications: Mains supply: 230 V ±10%, 50 Hz, DC Power supply: +12V, -12V, Sine wave generator Frequency:1 KHz, Amplitude : 20 Vpp Max, Speaker: 8 ohm, Unknown Inductors: 12H, 1.2H, 4.7 mH, 10 mH 20mH, 30 mH, Unknown Internal Resistance : 470Ω, 10Ω , 20Ω , 30Ω Scope of Learning: Determination of unknown inductance using Maxwell's inductance bridge method, Determination of unknown inductance and its Q-factor using Maxwell's inductance-capacitance bridge method
4	KELVIN'S DOUBLE BRIDGE	Features: On board test points to observe signals On board schematic diagram Flexibility of making circuit connections Light weight & compact. AD-01 DC Power Supply (±12V, ± 5V), Scope of Learning: Measuring the value of unknown resistance using Kelvin's double bridge High cutoff frequency of Low pass filter Pass band gain of Low Pass Filter Plot the frequency response of Low Pass Filter
5	PRESSURE TRANSDUCER EXPLORER	The instrument should have following features : Differential input Pressure Transducer, Precise Signal conditioning, Self-contained and easy to operate, Data acquisition using USB, Sensitive, Linear, Stable &

		Accurate, Functional blocks indicated on board mimic, On board Digital Voltmeter, On board Indicators: Buzzer & LED, On board On/Off Controller, Graphical representation, User friendly software, On Board Touch Switch, The instrument should have following Technical Specifications :Pressure Transducer :0 to 100 psi, Differential input, Pressure Gauge:0 to 100 psi, Pressure Vessel : 0 to 100 psi, Safety Valve : 0 to 100 psi, Hoses:1.5 m, Foot Pump: 0 to 150 psi, V-I Specification : 0 to 5 VDC input, 4 to 20 mA output, Buzzer Indicator:5 V DC, LED Indicator 5 V DC, Digital Voltmeter : 0 to 10 V, Power Supply: 100V - 240V AC, 50/60Hz, Test Points:18 nos, Learning Material: Online, Operating Conditions: 0-40° C, 85% RH, Included Accessories: PU -Tube - 1 meter, Foot Pump-1no, USB cable-1no., Pressure Vessel-1no, Mains cord -1 no. Power Supply-1no., Patch cord 16"(2mm) - 10 nos., Experiments that can be performed :Study of the characteristics of Pressure Transducer, Study of Pressure control by an 'On/ Off' Controller, Study of how the Pressure Transducer output in voltage is converted into current (4 to 20 mA) for transmission purpose. , Real Time study of Pressure Transducer characteristics with PC interface, Study of Differential Amplifier with Pressure Transducer, Study of Pressure control by 'On/Off' Controller by using PC interface
6	INSTRUMENTATION AMPLIFIER : DESIGN FOR SPECIFIC GAIN AND VERIFICATION OF CMRR	Study of Instrumentation Amplifier using Op-amp IC-741. Inbuilt Power Supply. 2mm Socket & test points provided on board to observe the waveform & signals. Enclosed in an attractive ABS plastic cabinet with cover for safety of components. Set of Patch Chords & Experimental Manual.
7	REALIZATION OF PCM SIGNAL USING ADC AND RECONSTRUCTION USING DAC USING 4-BIT / 8-BIT SYSTEMS. OBSERVE THE QUANTIZATION NOISE IN EACH CASE.	In the basic PCM Modulator the base band analog Signal is converted into 8 bit Digital format using an ADC. The Sampling rate is set at 2.5 KHz. The 8 bit parallel data from ADC is converted into serial bit stream at 20 kbps. The PCM Demodulator receives the serial data, converts it into 8 bit parallel format. The Analog to Digital converter transforms the 8 bit parallel data into analog level. Thus the output of DAC is a stepped approximation of input signal. A low pass filter is used to recover the analog signal. HARDWARE SPECIFICATION :Inbuilt Power Supply. Built in TTL Clock Generator 20 KHz. Modulating signal Generator 100Hz to 5KHz. PCM Encoder & PCM Decoder. Data display with LED's. Assembled in plastic Box with circuit printed on PCB with 2mm socket for test points & to see the waveforms. Set of 2mm Patch Chords & Manual.
8	STUDY OF LOW NOISE AND LOW FREQUENCY AMPLIFIER FOR BIOMEDICAL APPLICATION	Study of Low Noise and Low Frequency Amplifier Trainer. Circuit Diagram Printed on Board. Enclosed in an ABS plastic cabinet with cover. Inbuilt Power Supply. Set of Patch Chords. User's Manual.

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. _____