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COLLEGE OF TECHNOLOGY AND ENGINEERING
Maharana Pratap University of Agriculture and Technology UDAIPUR – 313001 (India)

Dr. S.S. Rathore
Professor & Dean

No.CTAE/GEN/2017/8943
Dated: 10.11.2017

INVITATION FOR BIDS Shopping (Goods)


Package No. CTAE/EE/P1 and CTAE/ECE/P1

1. The Government of India has received a Credit from the International Development Association and a loan from the international Bank for Reconstruction and Development in various currencies towards the cost of Technical Education Quality Improvement Programme [TEQIP]-Phase III project and it is intended that part of the proceeds of this credit will be applied to eligible payments under the contracts for which this Invitation for Bids is issued.
2. The **College of Technology and Engineering, Udaipur** now invites sealed bids from eligible bidders for the supply of following goods.

S. No.	Name of Work	Supply Period (Days)
1.	Digit Precision Multimeter and High Precision Multi-product/multifunction calibrator	60
2.	Analog Radar Training System, Anechoic Chamber at Microwave Frequency, Gunn based Microwave bench, Isotropic Antenna with software and Klystron based Microwave Bench	60

Last Date Submission of dully filled Bid Document: 27-11-2017 (05:00 PM)

3. Interested Bidders may obtain further information's from the office of **Dean, College of Technology and Engineering, Udaipur, India**, or visit the website www.ctae.ac.in
4. Bid document can be downloaded from the above website Downloaded bid document may be submitted to **Dean, CTAE, Udaipur**.


10.11.2017
DEAN

INVITATION FOR QUOTATION

TEQIP-II/2017/ctem/Shopping/11

10-Nov-2017

To,

Sub: Invitation for Quotations for supply of Goods

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	Brief Description	Quantity	Delivery Period(In days)	Place of Delivery	Installation Requirement (if any)
1	Analog Radar Training System with Radar Cross Section and Inverse Synthetic Aperture Radar measurement facility	1	60	CTAE, Udaipur	As per Satisfaction on Deptt. of ECE
2	Anechoic Chamber at Microwave Frequency	1	60	CTAE, Udaipur	As per satisfaction of Dept. of ECE
3	Gunn based Microwave bench with dielectrics phase shifter & cavity:	2	60	CTAE, Udaipur	As Per satisfaction of Deptt. of ECE
4	Isotropic Antenna with software for field strength measurement and Analysis	1	60	CTAE, Udaipur	As per satisfaction of Deptt. of ECE

5	Klystron based Microwave Bench X Band with different antennas & Motorized turntable	2	60	CTAE, Udaipur	As per satisfaction of Deptt. of ECE
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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, initialing, 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
 - 3.6 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.
 - 3.7 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 **55** 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:
Delivery, Installation Delivery and Installation Satisfactory Acceptance - 100% of total cost

10. All supplied items are under warranty of **12** months from the date of successful acceptance of items.
11. You are requested to provide your offer latest by **17:00** hours on **27-Nov-2017**.
12. Detailed specifications of the items are at Annexure I.
13. Training Clause (if any) **As per satisfaction of Department of Electronics and Communication Engg.**
14. Testing/Installation Clause (if any) **As per satisfaction of Department of Department of Electronics and Communication Engg.**
15. Information brochures/ Product catalogue, if any must be accompanied with the quotation clearly indicating the model quoted for.
16. The successful bidder shall furnish the Performance Security (5% of the contract value) to the Purchaser in the form of bank guarantee after the receipt of acceptance letter. The Performance Security shall be valid up to 28 days from the date of expiry of warranty period.
17. If the supplier fails to deliver the desired goods within period specified in Purchase order, liquidated damages will be applicable (applicable rate is 0.07% per week and maximum deduction is 10% of the contract price).
18. **“Teqip Package CTAE/ECE/P1 Date of opening 28.11.2017”** should be written on the top of sealed envelope.
19. Sealed quotation to be submitted/ delivered at the address mentioned below,
Dean, College of Technology, University Campus, Udaipur 313001
20. We look forward to receiving your quotation and thank you for your interest in this project.

(Authorized Signatory)
Dr. S.S. Rathore
DEAN, CTAE, UDAIPUR

Annexure I

1. Analog Radar Training System with Radar Cross Section and Inverse Synthetic Aperture Radar measurement facility:

Specifications:

Frequency	8-10 GHz
Antennas	18 dB (7.3 x 9.1 cm; 2.9 x 3.6 in) pyramidal horn 27 dB (30 cm; 11.8 in) offset feed parabolic reflector
Sensitivity	-37 dBsm
Pulse Width	variable from 0.6 to 5.5 ns (1, 2 and 5 ns in calibrated mode)
Peak Power	200 mW, Range up to 10 m; 30 ft
Dynamic Range	54 dB
A/D Conversion	10 bits
Averaging	4, 8, 16, 32 samples
Positioning Accuracy	0.25 degrees

2. Anechoic Chamber at Microwave Frequency

Specifications:

Chamber Size	≥ 3meter x 3meter x 3 meters. The vendor should clearly mention the achievable dimension of the chamber.
Frequency of operation	0.8 GHz to 20 GHz
Shielding structure	Needs to be constructed GI Sheet of thickness ≥2mm
Shielding Effect	Min. 90 dB as per standard IEEE299
RF Shielded Door: Qty	One, Size: 3feetx7feet using BeCu Finger Gaskets
Access Panel	300mm x 300mm having BNC-BNC, N(F)-N(F), SMA(F)- SMA(F) each Qty: 6 (Tentative). Vendor should clearly indicate the wiring plan to optimize the cable length
RF Power Line Filter	16Amp, 220V, 50Hz
CCTV system with Camera for the monitoring the chamber during measurement.	
Fire Alarm system having Two Zone Panel, Manual Call Point, Hooter	
Fire Extinguisher cylinder, Qty: 1.	
Option for mounting 1.5 Ton AC to regulate the temperature.	
Maintenance Free Chemical Earthing. Grounding Resistance of < 2 ohm using copper Strips.	
Emission Free LED lights, Qty: Four @ 20 Watts.	
Reflectivity of Anechoic Chamber:	≤-28dB @ 800MHz ≤-35dB @ 2GHz ≤-40dB @ 8GHz ≤-48dB @ 18GHz
Quiet zone size	60cm x 60cm x 60cm @ 800MHz. Quiet zone to be tested as per Free Space VSWR method.
RF Absorbers are to be tested as Per NRL ARCH METHOD for its Reflectivity and as per NRL8093 for Fire Retardancy.	
Power Handling Capacity: ≥700W/Sq. Meter.	
Absorber's Self Life: ≥15 Years.	

3. Gunn based Microwave bench with dielectrics phase shifter & cavity:

Specifications:

Gunn Power Supply digital	:	1 With LCD display simultaneous for Voltage & current.
Gunn Oscillator	:	1
PIN Modulator	:	1
Isolator	:	1
Frequency Meter Digital	:	1 With LCD Display
Variable Attenuator	:	1
Slotted Section	:	1
Tunable Probe	:	1
Detector Mount	:	1
Precision Movable Short	:	1
Digital VSWR Meter with Back lit LCD display :	:	1
Wave Guide Stand	:	4
Microwave cavity	:	1
Liquid Dielectric Cell	:	1
Solid Dielectric cell	:	1
Phase shifter	:	1
Set of solid dielectrics	:	1 set Nylon, Teflon, Ebonite, Perspex, wax in 10, 20, 30 mm lengths.

Accessories	
Cooling Fan	: 1
BNC to BNC cable	: 2
Microphone	: 1
Experiment manual	: 1
Video Demo CD	: 1
Wall chart with pictures	: 1 & Formulas of Microwave
Gunn power supply	
Display	16 × 2 Characters LCD
Voltage Range	: 0 to 10 V
Current	750 mA max
Stability	: 0.1 % for + 10% mains variation
Ripple	1.0 mV typical
Modulating Freq	: 800 to 1200 Hz
Modulating Voltage	0 - 10 V _{pp} variable
Modulation Modes	Continuous Wave Internal Modulation (Square Wave), Audio Modulation, Audio Modulation
PC-Interface	RS - 232
Output Connector	BNC for Gunn Bias, N-Type connector for Pin Bias
Power Supply	220 V ± 10%, 50Hz
Audio Input	MIC jack for audio communication.
Gunn Oscillator	
Freq. range	: 8.5 to 11.5 GHz (Mech. Tunable)
Freq. accuracy	±1 %
Load VSWR	1.5 max.
Output power	min 10 mW to 15 mW for entire range
Freq. Stability	500 KHz /C temp.
Pushing sensitivity	10 MHz.
Waveguide type	WR 90

4. Isotropic Antenna with software for field strength measurement and analysis

Specifications:

Application fields	Repeaters and stations for GSM/UMTS/LTE , repeaters for broadband Wi-Fi/Wi-Max
kit includes	tri-axial isotropic antenna, standard calibration certificate(containing SWR and K factors), 2 m composite cable, W ¼" vertical support
Available Accessories	Carry case, wooden tripod, manual axis selector, USB axis selector, EMF measurement software
Electrical characteristics	
Antenna type	Isotropic transducer with 3 orthogonal dipole antennas
Polarization	Linear polarization in three axis, Internally selected by a RF switch with solid state circuit
Frequency range	From 400 MHz to 6000 MHz
Maximum applicable field	300 V/m
Linear dynamic range	Up to 200 V/m (1dB compression point)
Sensitivity	0.35 mV/m(Depend of RBW and noise quality of spectrum analyzer)

Isotropic Measurement Uncertain	+1.5 / -1.5dB from 400MHz to 1500MHz +1.8 / -2.0dB from 1500MHz to 2000MHz +2.2 / -2.5dB from 2000MHz to 3500MHz +2.8 / -3.5dB from 3500MHz to 6000MHz
Physical characteristics	
Dimensions	Antenna radome Ø 200 mm, Total length 540 mm
Connectors	N(Female)
Materials	Plastic material (enclosure)
Protection level	IP 42
Temperature	From -20°C to +50°C
Humidity	Max 95% at 40°C

5. Klystron based Microwave Bench X Band with different antennas & Motorized turntable

Klystron Power Supply (Digital)	:	1
Klystron Mount	:	1
Klystron Tube	:	1
Isolator	:	1
Frequency Meter Digital	:	1 With LCD Display
Variable Attenuator	:	1
Detector Mount	:	1
Digital VSWR Meter with	:	1 Back lit LCD display
Coaxial to WG adapter	:	1
Software for above Turntable	:	1
Wave guide twist	:	1
Pair of bends to connect the antenna	:	1
Waveguide Stand	:	2
ANTENNAS:		
Dielectric antenna	:	1
E Plane Sectorial Horn Antenna	:	1
H Plane Sectorial Horn Antenna	:	1
Parabolic Dish antenna	:	1
Pickup Horn antenna	:	1
Pyramidal horn antenna	:	1
Slotted Narrow wall antenna	:	1
Slotted broad wall antenna	:	1
Standard gain horn antenna	:	1
Motorized Radiation Pattern turntable	:	1 With Microcontroller based high precision DC stepper Motor
Auto zero point setting Built in DC Power supply		
Resolution	:	1 deg.
RS 232 interface, software & PC Based motorized Unit.		

Accessories:	
Cooling Fan	: 1
BNC to BNC cable	: 2
Coaxial N to N cable	: 1
Microphone	: 1
Experiment Manual	: 1
Wall chart with pictures	: 1 and Formulas of Microwave
Should support audio communication over Microwave bench.	
Electrical characteristics:	
Beam supply	240-420 VDC variable
Current: 50 mA	Linear polarization in three axis, Internally selected by a RF switch with solid state circuit
Regulation	0.5 % for 10 % I/P variation.
Ripple	< 5 mV rms on load.
Repeller supply	- 18V to -270 V DC Variable on load.
Regulation	0.25 for 10 % input variation.
Filament supply	6.3 VDC (adjustable on rear panel)
Overload Trip	: 65 mA.
Modulation	AM(square)FM (saw tooth)
Frequency range	500-2000 Hz ,50-150 Hz
Amplitude	0-110 Vpp ,0-60 Vpp.
External	Through external modulating signal
Display :	Digital display for Beam voltage, Beam current, Repeller voltage.
Modulation selector :	CW/AM/FM/EXT.
3 ½ Digit panel meter :	2V
Meter selector	Beam voltage/current/repeller.
Connector	(a) 8-pin octal socket (b) BNC for external Mod.
Power Supply	220 V AC ±10%,50 Hz.
Audio Input	Mic Jack for audio communication.
3 ½ Digit panel meter	2V

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: _____