Bundelkhand Institute of Engineering & Technology, Jhansi

Kanpur Road Jhansi, Uttar Pradesh – 284128

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INVITATION FOR QUOTATION

TEQIP-II/2016/UP2G04/Shopping/46 **08-Jun-2016**

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	1000BASE-LX/LH SFP transceiver module for SMF Fiber	16	30	BIET Jhansi	
2	12 Port Jack Panel CAT6	8	30		
3	24 Port Jack Panel CAT6	1	30		
4	6 Core Single Mode Fiber Cable	1350	30		
5	9U Rack with PDU and Accessories	9	30		
6	Controller/Virtual Controller based Indoor 802.11ac Access Point PoE enabled	25	30		
7	Core Switch IPV6 Layer3 Core Switch	1	30		
8	Digging and refilling of Hard Soil	150	30		
9	Digging and refilling of Soft Soil / Wall	1200	30		
10	Documentation and Configuration entire network	1	30		

11	Fiber Patch Cord 2 Meter	18	30		
12	I/O Fixing &Termination	25	30		
13	Installation Route Marker	12	30		
14	Iron Security case with Lock for AP	25	30		
15	Layer2 Switches	3	30		
16	Laying of CAT-6 Cable in PVC Pipes/ Conduits (per meter)	1750	30		
17	Laying of Fiber Cable in HDPE Pipe	1350	30		
18	Laying of PVC Pipes/ Conduits	900	30		
19	LIU Fixing and Dressing	9	30		
20	Outdoor UTP CAT6 cable(Box of 305 meters)	1	30		
21	Patch Panel Termination	8	30		
22	Port 12 LIU with Coupler with Single mode Pigtails	2	30		
23	Port 6 LIU with Coupler with Single mode Pigtails	7	30		
24	Rack Fixing and Dressing including Fixing of Jack Panels, Cable Laying and Ferruling etc.	8	30		
25	Route Marker	12	30		
26	Smart Managed Layer2 PoE Switch	8	30		
27	Splicing of Fiber (Per Core)	66	30		
28	Supply of 1" PVC Pipes/ Conduits including required gully, screw	900	30		
29	Supply of HDPE Pipe 32mm	1350	30		
30	UTP CAT 6 Information Outlet with Surface Mount Box with Shutter	25	30		
31	UTP CAT6 cable(Box of 305 meters)	6	30		
32	UTP CAT6 Patch cord(1 Meter)	50	30		

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 II** 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 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 **30** 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 and Installation - 90% of total cost

   Satisfactory Acceptance - 10% of total cost

10. All supplied items shall be under warranty of **60 months Back to Back from OEM. Documentary Proof** required from the date of successful acceptance of items.
11. You are requested to provide your offer latest by **14:00** hours on **24-Jun-2016 .**
12. Detailed specifications of the items are at Annexure I.

13. Training Clause (if any) **NIL**
14. Testing/Installation Clause (if any) **YES**
15. Information brochures/ Product catalogue, if any must be accompanied with the quotation clearly indicating the model quoted for.
16. Sealed quotation to be submitted/ delivered at the address mentioned below,
    (A) TEQIP Coordinator, Civil Engineering Building, Bundelkhand Institute of Engineering & Technology, Kochhabhanwar, Kanpur Road, Jhansi, UP

    Or

    (B) Drop Box Kept at Administrative Building, BIET Jhansi
17. We look forward to receiving your quotation and thank you for your interest in this project.

(Authorized Signatory)
Name & Designation

Annexure I

Detailed Technical Specifications of Core Switch

Sr. No	Technical Specifications	Compliance Yes / No
	Detailed Technical Specifications of Layer3 Core Switch (Item No.1)	
1	**Architecture**	
1.1	Modular architecture, minimum 09 slots or Higher for interface modules	
1.2	Shall have two dedicated switch fabric slots in addition to the interface modules. Both the Slots must be populated with Supervisory Fabric Modules in redundant configuration	
1.3	Shall have fully distributed architecture (any additional hardware required for the same shall be proposed)	
1.4	Shall provide distributed Layer-2 (switching) and Layer-3 forwarding (Routing) on all line cards (any additional hardware required for the same shall be proposed)	
1.5	Shall have minimum 2.0 or Higher Tbps of switching backplane capacity	
1.6	Shall have minimum 900 Gbps or Higher switching capacity	
1.7	Shall have up to 700 Mpps or Higher of switching throughput	
1.8	Shall support minimum or higher 400 Gigabit ports (Copper or SFP)	
1.9	Shall support Minimum 80 10G or Higher ports (SFP+/XFP)	
1.10	Shall be 19"Rack Mountable	
1.11	Shall have 48 Nos.of 10/100/1000 Mbps TX Ports	
1.12	Shall have 8 Nos. of 10G SFP+ Ports and must support 1/10G Transreceivers and 12 Nos. 1000 Base-X ports	
1.13	Shall have Dual Redundant Power Supplies	
2	**Advanced Service Modules support**	
2.1	The switch shall support service modules to port applications directly to the switch chassis. This shall include support for the below service modules	

2.2	● Firewall and VPN module ● Intrusion Prevention System (IPS) module ● Wireless LAN services module ● Server Load Balancer Module	
3	**Resiliency**	
3.1	Shall have the capability to extend the control plane across multiple active switches making it a virtual switching fabric, enabling interconnected switches to perform as single Layer-2 switch and Layer-3 router	
3.2	Shall support virtual switching fabric creation across four chassis-based switches using 10G Ethernet Links	
3.3	Hot-swappable Modules	
3.4	Passive backplane with no active components for increased system reliability	
3.5	IEEE 802.1D Spanning Tree Protocol, IEEE 802.1w Rapid Spanning Tree Protocol and IEEE 802.1s Multiple Spanning Tree Protocol	
3.6	IEEE 802.3ad Link Aggregation Control Protocol(LACP)	
3.7	Ring protocol support to provide sub-100 ms recovery for ring Ethernet-based topology	
3.8	Virtual Router Redundancy Protocol (VRRP) to allow a group of routers to dynamically back each other up to create highly available routed environments	
3.9	Graceful restart for OSPF,IS-IS and BGP protocols	
3.10	Bidirectional Forwarding Detection (BFD) for OSPF, IS-IS and BGP protocols	
4	**Layer 2 Features**	
4.1	Shall support up to 4,000 port or IEEE802.1Q-based VLANs	
4.2	Shall support GARP VLAN Registration Protocol or equivalent feature to allow automatic learning and dynamic assignment of VLANs	
4.3	Shall have the capability to monitor link connectivity and shut down ports at both ends if uni-directional traffic is detected, preventing loops	
4.4	Shall support IEEE 802.1ad QinQ and Selective QinQ to increase the scalability of an Ethernet network by providing a hierarchical structure	
4.5	Shall support Jumbo frames on GbE and10-GbE ports	
4.6	Internet Group Management Protocol (IGMP)	
4.7	Multicast Listener Discovery (MLD)snooping	

4.8	IEEE 802.1AB Link Layer Discovery Protocol (LLDP)	
4.9	Multicast VLAN to allow multiple VLANs to receive the same IPv4 or Ipv6 multicast traffic	
5	**Layer 3 Features (any additional licenses required shall be included)**	
5.1	Static Routing for IPv4 and IPv6	
5.2	RIP for IPv4(RIPv1/v2)and IPv6 (RIPng)	
5.3	OSPF for IPv4(OSPFv2) and IPv6 (OSPFv3)	
5.4	IS-IS for IPv4 and IPv6 (IS-ISv6)	
5.5	Border Gateway Protocol 4 with support for IPv6 addressing	
5.6	Policy-based routing	
5.7	Unicast Reverse Path Forwarding (uRPF)	
5.8	IPv6 tunneling to allow IPv6packets to traverseIPv4-only networks by encapsulating the IPv6 packet into a standard IPv4 packet	
5.9	Dynamic Host Configuration Protocol (DHCP) client, Relay and server	
5.10	PIM Dense Mode (PIM-DM), Sparse Mode (PIM-SM), and Source-Specific Mode (PIM-SSM) for IPv4 and IPv6 multicast applications	
6	**QoS and Security Features**	
6.1	Access Control Lists for both IPv4 and IPv6 for filtering traffic to prevent unauthorized users from accessing the network	
6.2	Port-based rate limiting and access control list (ACL) based rate limiting	
6.3	Congestion avoidance using Weighted Random Early Detection (WRED)	
6.4	Powerful QoS feature supporting strict priority (SP) queuing, weighted round robin (WRR) and weighted fair queuing (WFQ)	
6.5	IEEE 802.1x to provide port-based user authentication with multiple 802.1x authentication session per port	
6.6	Media access control (MAC) authentication to provide simple authentication base dona user's MAC address	
6.7	Dynamic Host Configuration Protocol (DHCP) snooping to prevent unauthorized DHCP servers	
6.8	Port security and port isolation	
7	**Management Features**	
7.1	Configuration through the CLI, console, and Web Management	

7.2	SNMPv1,v2,andv3 and Remote monitoring (RMON)support	
7.3	sFlow (RFC 3176)or equivalent for traffic analysis	
7.4	Management security through multiple privilege levels with password protection	
7.5	FTP,TFTP, and SFTP support	
7.6	Port mirroring to duplicate port traffic (ingress and egress) to a local or remote monitoring port. Shall support minimum four mirroring groups	
7.7	RADIUS/TACACS+ for switch security access administration	
7.8	Network Time Protocol (NTP) or equivalent support	
7.9	Shall have Ethernet OAM(IEEE802.3ah) management capability	
8	**Environmental Features**	
8.1	Shall provide support for RoHS and WEEE regulations	
8.2	Shall be capable of supporting both AC and DC Power inputs	
8.3	Operating temperature of 0°C to 45°C	
8.4	Safety and Emission standards including UL 60950-1; IEC 60950-1; VCCI Class A;EN 55022ClassA	

Detailed Technical Specifications of POE Switches (Item No. 2)		
1	**Architecture**	
1.1	The switch shall have 8 RJ-45 auto-negotiating 10/100/1000 PoE ports	
1.2	The switch shall have two 1000 BASE-X SFP port in addition to above ports	
1.3	The switch shall support IEEE 802.3af PoE and IEEE 802.3 at PoE+	
1.4	The switch shall have minimum 160W Watts for PoE Power	
1.5	Shall support 1000 Base-SX, LX, and LX Bi- directional SFP transceivers	
1.6	Switching capacity of 18 Gbps	
1.7	Switching through put of up to13.4 million pps	
1.8	1 RJ-45 console port	
2	**Layer 2 Features**	
2.1	MAC Address table size of 8,000 entries	
2.2	Shall support IEEE 802.3ad Link Aggregation Control Protocol(LACP)	
2.3	Shall support IEEE 802.1 D Spanning Tree Protocol	
2.4	Shall support IEEE 802.1w Rapid Spanning Tree Protocol for faster convergence	
2.5	Shall support IEEE 802.1s Multiple Spanning Tree Protocol	
2.6	Shall support IGMP snooping for multicast filtering instead of flooding traffic to all ports, improving network performance	
2.7	Shall support MLD snooping to forward IPv6 multicast traffic to the appropriate interface, preventing traffic flooding	
2.8	Shall support IEEE 802.1AB Link Layer Discovery Protocol(LLDP)	
2.9	Shall support LLDP-MED (Media Endpoint Discovery) to automatically configure network devices such as IP phones	
3	**Layer 2 and Layer-3 features**	
3.1	Shall support IEEE 802.1Q (4,094 VLAN IDs) and 256 VLANs simultaneously	

3.2	Shall support Voice VLANs	
3.3	Shall support gratuitous ARP to allow detection of duplicate IP addresses	
3.4	Shall support Jumbo frames up to 9 kilobyte frame size	
3.5	Shall support Static IPv4 routing	
3.6	Shall support Static IPv6 routing	
3.7	Shall support DHCP relay to simplify management of DHCP addresses in networks with multiple subnets	
4	Security and QoS Features	
4.1	Shall support port security and port isolation	
4.2	Shall support packet storm protection to protect against broadcast, multicast, or unicast storms with user-defined thresholds	
4.3	Shall support MAC and IP-based ACLs enable network traffic filtering and enhance network control	
4.4	Shall support ACL and QoS for IPv6 network traffic	
4.5	Shall support time-based ACLs to allow for greater flexibility with managing network access	
4.6	Shall support IEEE 802.1X and RADIUS network logins to control port-based access for authentication and accountability	
4.7	Shall support web authentication or portal authentication	
4.8	Shall support traffic prioritization based on DSCP or IEEE 802.1p classification and SP/WRR queue scheduling	
4.9	Shall support ARP detection feature to block ARP packets from unauthorized clients	
4.10	Shall support DHCP snooping to block unauthorized DHCP Servers	
4.11	Shall support STP BPDU protection preventing forged BPDU attacks	
4.12	Shall support STP Root Guard to protect the root bridge from malicious attacks or configuration mistakes	
5	**Management Features**	
5.1	SNMPv1, v2c,and v3 and RMON support	
5.2	IPv 6 host support to be managed using IPv6	
5.3	Shall support Port mirroring	

5.4	Shall support intuitive Web GUI (http/https) for easy management	
5.5	Shall support command-line interface to deploy and troubleshoot	
5.6	Shall support management security through multiple privilege levels	
5.7	Shall support single IP address management for up to 8 switches	
5.8	Shall support Network Time Protocol(NTP)	
5.9	Shall have an operating temperature of 0°C to 45°C	

Detailed Technical Specifications of Layer2 Switches (Item No. 3)		
1	**Architecture**	
1.1	Shall be 1RU, 19" Rack Mountable	
1.2	24 RJ-45 autosensing 10/100/1000 and 2 SFP ports,	
1.3	1 RJ-45 serial console port	
1.4	256MB DDR3 DIMM and 128 MB flash	
1.5	Shall have switching capacity of 55 Gbps	
1.6	Shall have up to 40 mpps switching throughput	
2	**Resiliency**	
2.1	IEEE 802.1D Spanning Tree Protocol, IEEE 802.1w Rapid Spanning	

	Tree Protocol and IEEE 802.1s Multiple Spanning Tree Protocol	
2.2	IEEE 802.3ad Link Aggregation Control Protocol (LACP)	
2.3	Ring protocol support to provide sub-100 ms recovery for ring Ethernet-based topology	
2.4	Shall support distant or local Stacking of minimum 8 switch over optical fiber cable	
3	**Layer 2 Features**	
3.1	Shall support up to 4,000 IEEE 802.1Q-based VLANs	
3.2	Shall support GARP VLAN Registration Protocol or equivalent feature to allow automatic learning and dynamic assignment of VLANs	
3.3	Shall have the capability to monitor link connectivity and shut down ports at both ends if uni-directional traffic is detected, preventing loops	
3.4	Shall support IEEE 802.1ad QinQ and Selective QinQ to increase the scalability of an Ethernet network by providing a hierarchical structure	
3.5	Shall support Jumbo frames on GbE ports	
3.6	Internet Group Management Protocol (IGMP) Snooping	
3.7	Multicast Listener Discovery (MLD) snooping	
3.8	IEEE 802.1AB Link Layer Discovery Protocol (LLDP)	
3.9	Shall support Voice VLAN feature to automatically assigns VLAN and priority to devices like IP phones	
4.5	Proxy ARP to allow normal ARP operation between subnets	
5	**QoS and Security Features**	
5.1	Access Control Lists for Layer 2	
5.2	Shall support global ACL, VLAN ACL, port ACL, and IPv6 ACL	
5.3	Traffic classification using multiple match criteria based on Layer 2	
5.4	Powerful QoS feature supporting strict priority (SP) queuing, weighted round robin (WRR) and and SP+WRR	
5.5	Shall support applying QoS policies on a port, VLAN, or whole switch, to set priority level or rate limit selected traffic	
5.6	IEEE 802.1x to provide port-based user authentication with multiple 802.1x authentication sessions per port	

5.7	Media access control (MAC) authentication to provide simple authentication based on a user's MAC address	
5.9	Port security and port isolation	
5.10	STP BPDU port protection to prevent forged BPDU attacks	
5.11	STP Root Guard to protect the root bridge from malicious attacks or configuration mistakes	
5.12	IP Source guard to prevent IP spoofing attacks	
5.13	Dynamic ARP protection blocking ARP broadcasts from unauthorized hosts	
6	Management Features	
6.1	Configuration through the CLI, console, Telnet, SSH and Web Management	
6.2	SNMPv1, v2, and v3 and Remote monitoring (RMON) support	
6.3	sFlow (RFC 3176) or equivalent for traffic analysis	
6.4	Management security through multiple privilege levels	
6.5	FTP, TFTP, and Secure FTP support	
6.6	Port mirroring to mirror ingress/egress ACL-selected traffic from a switch port or VLAN to a local or remote switch port	
6.7	RADIUS/TACACS+ for switch security access administration	
6.8	Network Time Protocol (NTP) or equivalent support	
6.9	Shall have Ethernet OAM (IEEE 802.3ah) management capability	
7	Environmental Features	
7.1	Shall provide support for RoHS and WEEE regulations	
7.2	Shall have features to improve energy efficiency like variable-speed fans, shutoff unused ports etc	
7.3	Operating temperature of 0°C to 45°C	
7.4	Safety and Emission standards including UL 60950-1; IEC 60950-1; VCCI Class A; EN 55022 Class A	
8	Warranty and Support	
8.1	The below Warranty shall be offered directly from the switch OEM.	
8.2	Five warranty with advance replacement and next-business-day delivery	

Detailed Technical Specifications of SFP Module (Item No. 4)
1000BASE-LX/LH SFP transceiver module for SMF Fiber (Same make as Switch OEM)

Detailed Technical Specifications of 802.11ac access point POE (Item No.5)		
1	Indoor Access Points 802.11a/b/g/n/ac	
2	AP must support the cluster min 60 Access Point from day1	
3	Access Point radio should be minimum 2X2 MIMO with 2 spatial streams or more. Dual Radio capable.	
4	Access Point should be 802.11ac ready from day one	
5	AP should have 1x10/100/1000 Gbps LAN port.	
6	802.11 a/b/g/n/ac functionality certified by the Wi-Fi alliance.	
7	Access Point can have integrated or external Antenna.	
8	The Max transit power of the AP + Antenna should be as per WPC norms for indoor Access Points. OEM to give a undertaking letter stating that the AP will configured as per WPC guidelines for indoor AP and also submit the WPC certificate showing approval.	
9	Should support 8x BSSID per AP radio.	
11	The access point should be capable of performing security scanning and serving clients on the same radio. It should be also capable of performing spectrum analysis and security scanning using same radio.	
12	Should support BPSK, QPSK, 16-QAM, 64-QAM and 256 QAM (256 QAM for 802.11ac only) modulation types	
13	Access point should support 802.3af/at POE standard.	
14	Access point should have option of external power adaptor as well.	
15	Access point should have console port.	
16	Must support Proactive Key Caching and/or other methods for Fast Secure Roaming.	
17	Must operate as a sensor for wireless IPS	
18	AP model proposed must be able to be both a client-serving AP and a monitor-only AP for Intrusion Prevention services	
19	The Access Point should have the technology to improve downlink performance to all mobile devices.	
20	Access point must incorporate radio resource management for power, channel, coverage hole detection and performance optimization	

Item No.	Detail Specification	Compliance Yes / No
6	12 Port Jack Panel CAT6	
7	24 Port Jack Panel CAT6	
8	UTP CAT 6 Information Outlet with Surface Mount Box with Shutter	
9	UTP CAT6 Patch cord(1 Meter)	
10	UTP CAT6 cable(Box of 305 meters)	
11	Iron Security case with Lock for AP	
12	Outdoor UTP CAT6 cable(Box of 305 meters)	
13	9U Rack with PDU and Accessories	
14	6 Core Single Mode Fiber Cable	
15	Supply of HDPE Pipe 32mm	
16	Fiber Patch Cord 2 Meter	
17	6 Port LIU with Coupler with Single mode Pigtails	
18	12 Port LIU with Coupler with Single mode Pigtails	
19	Supply of 1" PVC Pipes/ Conduits including required gully, screw (per meter)	
20	Route Marker	
	JOBWORK	
21	Digging and refilling of Soft Soil / Wall	
22	Digging and refilling of Hard Soil	
23	Laying of Fiber Cable in HDPE Pipe	
24	Installation Route Marker	
25	Splicing of Fiber (Per Core)	
26	LIU Fixing and Dressing	
27	Laying of PVC Pipes/ Conduits (per meter)	

28	Laying of CAT-6 Cable in PVC Pipes/ Conduits (per meter)	
29	I/O Fixing &Termination	
30	Patch Panel Termination	
31	Rack Fixing and Dressing including Fixing of Jack Panels, Cable Laying and Ferruling etc.	
32	Documentation and Configuration entire network	

SCOPE OF WORK.

Key Deliverables / Scope of work:

BIET Jhansi has got an existing Campus Wide Local Area Network which is functional. BIET Jhansi wants to enhance the Network by replacing some of the existing Switches with the latest higher speed switches, and also wants to install a Wi-Fi Network in the Campus. For this, the vendor has to ensure that the new switches are installed and are seamlessly integrated with the existing network. The work includes:

1.1 Installation and configuration of new switches as per the requirement.
1.2 Implementation of Controller/Virtual Controller based Wi-Fi.
1.3 Creation of VLAN`s as per requirement.
1.4 Fiber digging should at least 3 feet depth.

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: _____