College of Engineering Trivandrum, Thiruvananthapuram

NOTICE INVITING TENDER

P5/2812/20/CET 26.04.2021

E-Tender ID : 2021_DTE_421606_1
Tender No. :11/2021/P5/CET/NMEICT

Superscription	Purchase of Networking Accessories for various departments of this institution.
Last date and time of receipt of tender on the website (www.etenders.kerala.gov.in)	: 24/05/2021 3 PM
Date and time of opening of tender	: 26/05/2021 11 AM
Date upto which the rates are to be firm	: 26/11/2021
Bidding fee	: Rs.1888/-(Rs.1600/-+18%GST)
EMD required	: Rs.10030/-
Address of the Officer to whom hard copy is to be send.	: THE PRINCIPAL, COLLEGE OF ENGINEERING TRIVANDRUM, THIRUVANANTHAPURAM-695016, KERALA GSTIN:32AAAGC0358L1ZP

ITEM DESCRIPTION

Sl. No.	Particulars	Quantity
1	Gigabit Managed switch 28 Port . (Detailed Spec in Annexure I)	9
2	Wireless Access Point Indoor dual-band 802.11abgn/ac Wireless Access Point, dual ports,802.3af PoE support , POE Adapter(10/100/1000 Mbps), Secure Mounting Bracket, which can be managed by Ruckus Controller Smartzone 104 with Controller AP License for 15 Access points , 5 Year Support Warranty(Detailed Spec in Annexure II)	19
3	Supply and fixing of Ethernet patch code CAT6 RJ45 in the existing conduit.	300 Meter

General conditions

1.The price quoted should be inclusive of all taxes, freight charges, unloading charges, installation and commissioning charges and should be furnished unambiguously.
2.Payment: 100 % after successful supply, installation, commissioning and demonstration.
3.Delivery Period: Maximum Delivery period will be 60 days from the date of receipt of supply order.
4.Agreement as per NIT 2 in Rs.220/- Kerala Stamp Paper and tender form should be uploaded.
5.5% security deposit along with agreement should be furnished within a month/fortnight from the date of receipt of supply order.
6.Date of opening of tender: In case the proposed date declared as holiday, the tender will be opened on the next working day.
7.After E-Tendering the hard copy of all documents such as agreement, brochure,tender form should be submitted before the opening date.
8.Only GST registered firms can participate in the Tender.The firm under composition scheme must mention the words "Composition taxable person" in their quotation and should submit proof for that.

NB: The Tender procedure will be made as per Rules mentioned in the Revised Store Purchase Manual.

The bidders should participate this tender through E-Tendering System. Tender cost and EMD should be submitted only through online. For more details Contact Ph.0471 2577088, 0471 2577188, 0471 257388, 0471 2515505.

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Annexure I - 28 Port Gigabit Managed Switch	
Features	Technical specification
General	The Switch Should have Minimum 24 Port 10/100/1000 Mbps Base T , 2SFP ports and 2 port Gigabit Ethernet combo (RJ45 + SFP) ports
	The Switch should support non-blocking architecture with minimum switching capacity of 56 Gbps
	The Offered switch should support minimum 41.67 mpps of forwarding rate (64-byte packets)
	The switch should be fanless model with Mean time between failure 367,209 hrs
	The Offered switch should have 32 MB flash and 256 MB CPU memory
	Switch should support Standard 802.1d Spanning Tree support Fast convergence using 802.1w (Rapid Spanning Tree [RSTP]), enabled by default 8 instances Multiple Spanning Tree instances using 802.1s (MSTP)
	Switch should support for IEEE 802.3ad Link Aggregation Control Protocol (LACP),

Layer 2 Switching features	Up to 8 groups, Up to 8 ports per group with 16 candidate ports for each (dynamic) 802.3ad link aggregation
	Switchs should support for up to 4096 VLANs simultaneously,Port-based and 802.1Q tag-based VLANs,MAC-based VLAN,Management VLAN Private VLAN Edge (PVE),Guest VLAN,Unauthenticated VLAN,Dynamic VLAN assignment via Radius server along with 802.1x client authentication and CPE VLAN
	Switch should support Guest VLAN,Voice VLAN,GVRP/GARP, DHCP Relay at Layer 2 with option 82, IGMP versions1,2 and 3 snooping and 256 multicast groups.
	The Offered switch should be able to support source based multicasting.
	The offered switch should support Head-of-line (HOL) blocking prevention.
Layer 3 Switching features	Should support Wirespeed routing of IPv4 packets, support Up to 512 static routes and up to 128 IP interfaces
	Should Support for CIDR
	Should support Configuration of Layer 3 interface on physical port, LAG, VLAN interface, or loopback interface
	Switch should functions as an IPv4 DHCP server serving IP addresses for multiple DHCP pools/scopes & Support for DHCP options
	Should Support UDP
Security features	Should Support SSH protocols & SSL Support
	The Switch must have IEEE 802.1X: RADIUS authentication and accounting,Single/multiple host mode,Single/multiple sessions Support for time-based 802.1X, and Dynamic VLAN assignment
	Switch Should Support Web based authentication,
	The Switch should support DHCP Snooping, STP rootguard, STP BPDU
	The switch should have DOS prevention & Storm Control
	Switch should suppory Secure Core technology
	Switch should support IP/MAC/Port Binding (IPMB) & Dynamic ARP Inspection
	should support RADIUS and TACACS authentication

	The Switch should support ACL's up to 512 rules
Quality of Services features	The offered switch should support Priority levels with 8 hardware queues.
	The Switch should support scheduling using Strict priority and weighted rounf-robin (WRR) and Queue assignment based on DSCP and class of service (802.1p/CoS)
	The Switch should be capable of supporting Class of service based on following:- Port based; 802.1p VLAN priority based; IPv4/v6 IP precedence/type of service (ToS)/DSCP based; differentiated services (DiffServ); classification and remarking ACLs, trusted QoS.
	Should Support Ingress policer; egress shaping and rate control; per VLAN, per port, and flow based.
	Should support TCP congestion avoidance
	The Switch should support rate limiting using Ingress policer; egress shaping and rate control; per VLAN, per port, and flow based.
IPv6 features	The Offered switch should support following
	IPv6 host mode
	IPv6 over Ethernet
	Dual IPv6/IPv4 stack
	IPv6 neighbor and router discovery (ND)
	IPv6 stateless address auto-configuration
	Path maximum tranmission unit (MTU) discovery
	Duplicate address detection (DAD)
	ICMP version 6
	IPv6 over Ipv4 network with Intra-Site Automatic Tunnel Addressing Protocol (ISATAP)
	The switch should have support for IPv6 application such as Web/SSL, Telnet server/SSH, ping, trace route, Simple Network Time Protocol (SNTP), Trivial File Transfer Protocol TFTP), SNMP, RADIUS, syslog, DNS client, protocol-based VLANs.
	The offered switch should have Built-in switch configuration utility of reasy browser-based device configuration (HTTP/HTTPS).

Manangement features	The built-in web based utility should be support configuration, system dashboard, system maintenance, and monitoring
	The Switch should support SNMP version 1, 2c and 3 with support for traps, and SNMP version 3 user-based security model (USM)
	The Switch should support remote monitoring with Embedded RMON software agent with support of 4 RMON groups (history, statistics, alarms , and events) for enhanced traffic managementm monitoring, and analysis.
	Should Support VLAn Mirroring, Port Mirroring
	Should Support Cloud Services and GUI Localization
	The Switch should support Text-editable config files easier and faster mass deployments.
	The Switch should support minimum 16K mac addresses and jumbo frames with Frame sizes up to 9 KB supported on Gigabit interfaces.
	Should have Energy Detect option for Power efficiency & Saving
	The Switch should support Time- Based port operation
Standards	Switch should support IEEE 802.3 10BASE-T Ethernet, IEEE 802.3u 100BASE-TX Fast Ethernet, IEEE 802.3ab 1000BASE-T Gigabit Ethernet, IEEE 802.3ad LACP, IEEE 802.3z Gigabit Ethernet, IEEE 802.3x Flow Control, IEEE 802.1D (STP, GARP, and GVRP),IEEE 802.1Q/p VLAN, IEEE 802.1w RSTP, IEEE 802.1s Multiple STP, IEEE 802.1X Port Access Authentication, IEEE 802.3af, IEEE 802.3at,
	Should have UL (UL 60950), CSA (CSA 22.2), CE mark, FCC Part 15 (CFR 47) Class A Certifications
Warranty	Lifetime Warranty
MAF	Required

Annexure II -Wireless Access Point - Indoor Specifications
The APs should support the 802.11a, 802.11b, 802.11g and 11n and ac standards. It should also support 802.11ac Wave 2 standard in the 5 GHz band.
Simultaneous client support on dual band radio is essential.
Shall provide Min 22 dBm Radio output power for both Radio's.
Should support minimum 2x2 or higher MIMO on both radio bands for an aggregate capacity of 1.150Gbps
The access points should be centrally managed.
In some small isolated environments, the AP should be able to function as a full-fledged stand-alone access point without the requirement of a controller.
Security mechanisms should be in place to protect the communication between the Access Point controller and the Access Points.
Since most radio interference come from the WLAN network itself the vendor should specify what mechanisms such as beam steering/ adaptive antenna technology/ beamforming are available in combination to focus the energy on the destination STA and minimize radio interference with the surrounding of the AP. The vendor should specify if the activation of such feature is still compatible with 802.11n spatial multiplexing.
Since the WLAN network will be using an unlicensed band the solution should have mechanisms that reduce the impact of interference generated by other radio equipment operating in the same band. Describe techniques supported.
The access point should be able to detect clients that have dual band capability and automatically steer those client to use the 5GHz band instead of the 2.4GHz band.
The antennas to be dual polarised and should be integrated inside the access point enclosure to minimize damage and create a low profile unit that does not stand out visually.
The access point should have minimum 1 Gigabit Ethernet port. The AP should get powered on with 802.3 af POE and still function to its full capabilities. The AP should also support an USB port for IoT technologies.
The access point should support 802.1q VLAN tagging

The access point should support WPA2 enterprise authentication and AES/CCMP encryption. AP should support Authentication via 802.1X and Active Directory.
Implement Wi-Fi alliance standards WMM, 802.11d, 802.11h and 802.11e
The Access Point should provide for concurrent support for high definition IP Video, Voice and Data application without needing any configuration. This feature should be demonstrable.
Support RF auto-channel selection by the following three methods: a) measuring energy levels on the channel; b) monitoring for 802.11 signal structures and; (c) detecting radar pulses. Other similar forms of smart selection shall also be accepted.
Channel selection based on measuring throughput capacity in real time and switching to another channel should the capacity fall below the statistical average of all channels without using background scanning as a method.
Should support Transmit power tuning in 1dB increments in order to reduce interference and RF hazards
Device antenna gain (integrated) must be at least 3dBi and should provide automatic interference rejection of about 10dB.
Should support up to 200 clients per AP
Should support DHCP Option 82 in standalone mode (without Controller) as well as in Managed mode (with Controller)
For troubleshooting purposes, the administrator should have the ability to remotely capture 802.11 and / or 802.3 frames from an access point without disrupting client access.
Operating Temperature: 0°C - 50°C
Operating Humidity: 10 % - 95% non-condensing.
Should be plenum rated and comply to RoHS
Should be WiFi certified; WiFi certificate to be enclosed
Should be WPC approved; ETA certificate to be enclosed

Device should be UL 2043 Plenum Rated.
Mechanism for physical device locking using padlock /Kensington lock / equivalent

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