

8th January 2024

Addendum No. 6

To All Bidders,

**RESPONSE TO ALL BIDDERS- OPEN NATIONAL TENDER FOR SUPPLY,
DELIVERY, INSTALLATION AND COMMISSIONING OF AN OPEN EDUCATION
RESOURCES PORTAL AND ASSOCIATED HARDWARE. CA/SCM/OT/35/2023-2024**

Please refer to the above-mentioned tender.

The Information here below is provided pursuant to ITT 9.1 (Data sheet), section 1 clause 9(Clarification of Documents) and clause 10 – (Amendments of tender Documents).

We have received request for clarifications in reference to the above – mentioned Tender.

Please find herewith attached as *Annex 1* the Authority's clarification on the Technical Compliance Requirements for your information and noting.

ALL other conditions of the tender remain unchanged.

Yours Faithfully,



Janet Imunya
FOR: DIRECTOR GENERAL/CEO

B. TECHNICAL MANDATORY COMPLIANCE**i. Security Firewall**

No.	Feature	Minimum Technical Specifications	Reviewed Minimum Technical Specifications	Complied /NOT Complied	Provide explanation of how each of the Requirements (Requirement Description Column) will be achieved, and MUST make reference to the specific page/ pages in the Tender Document where the explanation is located
1.	Quantity	Two (2)	<i>No revision</i>		
2.	Hardware requirements Replaced "Technical specifications"	2 onboard 10/100/1000Base-T RJ45 ports	<i>No revision</i>		
		8x1 GbE Copper interface card	<i>No revision</i>		
		4x10 GbE SFP+ interface card	<i>No revision</i>		
		4xShort-range SFP+ trans receivers	4xShort-range SFP+ trans receivers		
		128 GB RAM on appliance	<i>No revision</i>		
		24 Physical CPU Cores	<i>No revision</i>		
		Redundant dual AC hot-swappable power supplies	<i>No revision</i>		
		Redundant dual hot-swappable 500GB SSD	<i>Dropped</i>		

		Minimum 30 million concurrent connections	Minimum 10 million concurrent connections		
		Minimum 420,000 connections per second	Minimum 250,000 connections per second		
		LOM card	LAN on Motherboard (LOM) card		
3.	Production Performance	77 Gbps Firewall throughput	Minimum 20.5 Gbps Firewall throughput		
		27 Gbps NGFW throughput	<i>Minimum 5 Gbps NGFW throughput</i>		
		35 Gbps Intrusion Prevention System throughput	10Gbps Intrusion Prevention System throughput		
			Bandwidth Management to ensure experience of critical services through managing bandwidth based on each user		
		15 Gbps Threat Prevention Throughput	Minimum 3 Gbps Threat Prevention Throughput and Identifies over 6,000 applications combining identification with antivirus, data filtering and intrusion detection		
4.	Network Connectivity	IPv4 and IPv6	<i>No revision</i>		
		1024 interfaces or VLANs persystem	802.1q VLAN Support		

		4096 interfaces per system (inVirtual System mode)	<i>Dropped</i>		
		802.3ad passive and active link aggregation	<i>No revision</i>		
		Layer 2 (transparent) and Layer 3(routing) mode	Layer 2 (transparent) and Layer 3(routing) mode		
			Support the following routing protocols: Minimum - Policy Base Forwarding, OSPF, OSPFv3, IS-IS, IS-ISv6, BGP, BGP4+ and RIP		
5.	High Availability	Active/Active – L2 mode	Supports High availability and hybrid working modes, Active/Standby – L2 mode		
		Active/Passive – L2 and L3 mode	<i>No revision</i>		
		ClusterXL or VRRP	<i>Dropped</i>		
6.	Centralized Security ManagementServer	Network Policy Management	<i>No revision</i>		
		Endpoint Policy Management	<i>Dropped</i>		
		Logging and Status	<i>No revision</i>		
		Monitoring	<i>No revision</i>		
		Smart-Event Intro	<i>Dropped</i>		
		Smart Provisioning	<i>Dropped</i>		

		User Directory	<i>No revision</i>		
		Compliance	<i>No revision</i>		
		Smart-Event	<i>Dropped</i>		
		Smart-Reporter	<i>No revision</i>		
		Virtual Manager to Manage up-to 5 gateways	<i>Dropped</i>		
7.	Cards and support required for the proposed solution	3 years Threat Prevention with Zero-day attack capability License 3 Years OEM Advanced Support	<i>No revision</i>		
8.	Manufacturer's Authorization letter	Provide manufacturers authorization letter for the proposed product	<i>No revision</i>		
9.	Warranty	One (1) Year OEM support with Next Business Day support for any part or device failure Replacement	<i>No revision</i>		

The following additional requirement for SAN switches with its Minimum technical specifications has been added to replace the Leaf Switches requirement;

ii. SAN Switches

No.	Item	Minimum Technical Specifications	Complied /Not complied	If complied, Bidders MUST provide explanation of compliance with reference to datasheet or bill of materials with the specific page number and section of the reference
1.	Type	Fibre Switch		
2.	Fibre Channel ports	Switch mode 24-port		
3.	Scalability	Full fabric architecture		
4.	Performance	Minimum 16 Gbps port speeds		
5.	ISL Trunking	Frame-based trunking with up to eight 16 Gbps ports per ISL trunk		
		Exchange-based load balancing across ISLs with DPS included in Fabric OS		
6.	Aggregate bandwidth	192 Gbps: 24 ports X 16 Gbps (data rate)		
7.	Maximum fabric latency	700 ns with no contention, cut-through routing at 16 Gbps		
8.	Frame buffers	700 dynamically allocated, 484 maximum per port		
9.	Classes of service	Class 2, Class 3, Class F (inter-switch frames)		
10.	Port types	M_Port (Mirror Port), and E_Port;		
		Self-discovery		
11.	Data traffic types	Fabric switches supporting unicast, multicast (255 groups) and broadcast		
12.	Media types	Hot-pluggable SFP+, LC connectors		
		8 Gbps Short-Wavelength Laser (SWL) and 16 Gbps Short-Wavelength Laser (SWL)		
		8 Gbps Long-Wavelength Laser (LWL) and 16 Gbps		

No.	Item	Minimum Technical Specifications	Complied /Not complied	If complied, Bidders MUST provide explanation of compliance with reference to datasheet or bill of materials with the specific page number and section of the reference
		Short-Wavelength Laser (SWL)		
		Fibre cables		
13.	USB	1 USB port for firmware download, support save, and configuration upload/download		
14.	Fabric services	Advanced Performance Monitoring (including Top Talkers);		
		Adaptive Networking (Ingress Rate Limiting, Traffic Isolation, QoS);		
		Advanced Zoning (default zoning, port/WWN zoning, broadcast zoning);		
		Bottleneck Detection;		
		F Port Trunking;		
		Dynamic Path Selection (DPS);		
		Frame Redirection;		
		Port Fencing		
		Simple Name Server (SNS)		
15.	Supported management software	HTTP, SNMP v1/v3 (FE MIB, FC Management MIB), Telnet; Auditing, Change Management tracking, Syslog; Brocade Advanced Web Tools, Brocade Fabric Watch; EZSwitchSetup wizard, Brocade Data Center Fabric Manager (DCFM), Brocade Fabric Manager (optional, FOS environments only), Brocade EFCM 9.x (optional), command line interface; SMI-S compliant; Administrative Domains; trial licenses for add-on capabilities		

No.	Item	Minimum Technical Specifications	Complied /Not complied	If complied, Bidders MUST provide explanation of compliance with reference to datasheet or bill of materials with the specific page number and section of the reference
16.	Security	DH-CHAP (between switches and end devices), HTTPS, IPsec, IP Filtering, LDAP, Port Binding, RADIUS, Role-Based Access Control (RBAC), Secure Copy (SCP), Secure RPC, SSH v2, SSL, Switch Binding, Trusted Switch		
17.	Management access	10/100 Ethernet (RJ-45), in-band over Fibre Channel; serial port (RJ-45); USB		
18.	Diagnostics	POST and embedded online/offline diagnostics, including RAStracelogging, environmental monitoring, non-disruptive daemon restart, FCping and Pathinfo (FC traceroute), port mirroring (SPAN port)		
19.	Enclosure	Non-port to port side airflow		
		1U		
20.	Power supply	Single, fixed power supply		
21.	Power consumption	Nominal 48 watts; maximum 57 watts with 24 ports at 8 Gbps		
22.	Manufacturer's Authorization letter	Provide manufacturers authorization letter for the proposed product		
23.	Warranty	One (1) year support services warranty for parts replacement and software with Next business Day include Partner Support		
24.	Licensing	The Switch must have a minimum of 16 port licensed		

iii. Leaf Switches. – **This item has been dropped**

iv. Management Switches

No.	Feature	Minimum Technical specifications	Reviewed Minimum Technical Specifications	Complied/ NOT Complied	Provide explanation of how each of the Requirements (Requirement Description Column) will be achieved, and MUST make reference to the specific page/pages in the Tender Document where the explanation is located
1.	Quantity	Two (2)	<i>No revision</i>		
2.	General Requirements	Brand and Model must be specified.	<i>No revision</i>		
		The switch must support the complete STACK of IPv4 and IPv6 services.	<i>No revision</i>		
		The switch must be supplied with all accessories including rack mount kits and power cords	<i>No revision</i>		
		The switch must support dual power supply units	<i>No revision</i>		
		The switch must have a minimum of 48*GE BASE-T ports, 4*10GE SFP+ Uplink and 4 * 10GBASE-SR SFP Module, 715W AC Power Supply, Std airflow (front to back), Power Cord, 250VAC Plug (13 A fuse)	The switch must have a minimum of 48x 1/10G Gigabit Ethernet, 4 x 10Gb SFP Module, Std airflow (front to back),		
		The switch must support a minimum switching capacity of 336 Gbps	The switch must support a minimum		

No.	Feature	Minimum Technical specifications	Reviewed Minimum Technical Specifications	Complied/ NOT Complied	Provide explanation of how each of the Requirements (Requirement Description Column) will be achieved, and MUST make reference to the specific page/pages in the Tender Document where the explanation is located
			switching capacity of 96 Gbps		
		The switch must support a Packet Forwarding Rate of at least 125 MPPS	No revision		
3.	Layer 2/3 Features	The switch must support at least 288,000 Mac addresses.	The management switches must support up to 288,000 Mac addresses		
		The switch must support Ethernet standards like IEEE 802.1p, Flow control, 802.1ab, 802.1D, 802.1w, 802.1s, 802.1x, 802.3ad, private VLAN	No revision		
		The switch must support LLDP.	No revision		
		Spanning tree port fast	No revision		
		The switch must support Jumbo Frames	No revision		
		Must Support for Automatic negotiation of trunking protocol based on IEEE 802.1Q, to minimize the configuration & errors.	No revision		
		The switch must support	No revision		

No.	Feature	Minimum Technical specifications	Reviewed Minimum Technical Specifications	Complied/ NOT Complied	Provide explanation of how each of the Requirements (Requirement Description Column) will be achieved, and MUST make reference to the specific page/pages in the Tender Document where the explanation is located
		IPv4 and IPv6 QoS classification and policing			
4.	QoS Features	The switch must support egress priority tagging.	<i>No revision</i>		
		The switch must support ACLs for both IPv4 and IPv6	<i>No revision</i>		
5.	Security Features	The switch must support Remote Authentication Dial-In User Service (RADIUS) and Terminal Access Controller Access-Control System (TACACS)	<i>No revision</i>		
		The switch must support a Secure shell (SSHv2)	<i>No revision</i>		
		The switch must support IEEE 802.1x for Authentication	<i>No revision</i>		
		The switch must support port level security to limit the maximum learnable MAC Address	<i>No revision</i>		
		The switch must support role-based user management such as limiting privileges for different users within the system	<i>No revision</i>		
		The switch must support	<i>No revision</i>		

No.	Feature	Minimum Technical specifications	Reviewed Minimum Technical Specifications	Complied/ NOT Complied	Provide explanation of how each of the Requirements (Requirement Description Column) will be achieved, and MUST make reference to the specific page/pages in the Tender Document where the explanation is located
		Telnet, SSH, HTTPS, SNMPv3, configuration rollback feature for ease of management			
6.	Management and trouble shooting	The switch must support SNMP notification for dynamic change in MAC Table	<i>No revision</i>		
		The Switch must be provided with all software licenses from day-1.	<i>No revision</i>		
7.	Manufacturer's Authorization letter	Provide manufacturers authorization letter for the proposed product	<i>No revision</i>		
8.	Warranty	One (1) Year OEM support with Next Business Day support for any part or device failure Replacement	<i>No revision</i>		

v. Link Aggregation Switches

No .	Feature	Minimum Technical specifications	Reviewed Minimum Technical Specifications	Complied/NOT Complied	Provide explanation of how each of the Requirements (Requirement Description Column) will be achieved, and MUST make reference to the specific page/pages in the Tender Document where the explanation is located
1.	Quantity	Two (2)	<i>No revision</i>		
2.	General Requirements	Brand and Model must be specified.	<i>No revision</i>		

No .	Feature	Minimum Technical specifications	Reviewed Minimum Technical Specifications	Complied/NOT Complied	Provide explanation of how each of the Requirements (Requirement Description Column) will be achieved, and MUST make reference to the specific page/pages in the Tender Document where the explanation is located
		The switch must support the complete STACK of IPv4and IPv6 services.	<i>No revision</i>		
		The switch must be supplied with all accessories including rack mount kits and power cords	<i>No revision</i>		
		The switch must support dual power supply units	<i>No revision</i>		
		The switch must have a minimum of 48x 1/10G Gigabit Ethernet + 40G Uplink and 4 * 10GBASE-	The switch must have a minimum of 48x 1/10G Gigabit Ethernet, 4 x 10Gb SFP Module, Std		

No .	Feature	Minimum Technical specifications	Reviewed Minimum Technical Specifications	Complied/NOT Complied	Provide explanation of how each of the Requirements (Requirement Description Column) will be achieved, and MUST make reference to the specific page/pages in the Tender Document where the explanation is located
		SR SFP Module, 715W AC Power Supply, Std airflow (port side exhaust), Power Cord, 250VAC Plug (13 A fuse)	airflow (front to back),		
		The switch must support a minimum switching capacity of 2,000 Gbps	<i>No revision</i>		
		The switch must support a Packet Forwarding Rate of at least 1200 Mpps	The switch must support a Packet Forwarding Rate of at least 1000 Mpps		
3.	Layer 2/3 Features	The switch must support at least 64,000 Mac addresses.	<i>No revision</i>		

No .	Feature	Minimum Technical specifications	Reviewed Minimum Technical Specifications	Complied/NOT Complied	Provide explanation of how each of the Requirements (Requirement Description Column) will be achieved, and MUST make reference to the specific page/pages in the Tender Document where the explanation is located
		The switch must support Ethernet standards like IEEE 802.1p, Flow control, 802.1ab, 802.1D, 802.1w, 802.1s, 802.1x, 802.3ad, private VLAN	<i>No revision</i>		
		The switch must support LLDP.	<i>No revision</i>		
		Spanning tree port fast	<i>No revision</i>		
		The switch must support Jumbo Frames	<i>No revision</i>		
		Must Support for Automatic negotiation of	<i>No revision</i>		

No .	Feature	Minimum Technical specifications	Reviewed Minimum Technical Specifications	Complied/NOT Complied	Provide explanation of how each of the Requirements (Requirement Description Column) will be achieved, and MUST make reference to the specific page/pages in the Tender Document where the explanation is located
		trunking protocol based on IEEE 802.1Q, to minimize the configuration & errors.			
		The switch must support IPv4 and IPv6 QoS classification and policing	<i>No revision</i>		
4.	QoS Features	The switch must support egress priority tagging.	<i>No revision</i>		
		The switch must support ACLs for both IPv4 and IPv6	<i>No revision</i>		
5.	Manufacturer's Authorization letter	Provide manufacturer's authorization letter for the proposed	<i>No revision</i>		

No .	Feature	Minimum Technical specifications	Reviewed Minimum Technical Specifications	Complied/NOT Complied	Provide explanation of how each of the Requirements (Requirement Description Column) will be achieved, and MUST make reference to the specific page/pages in the Tender Document where the explanation is located
		product			
6.	Warranty	One (1) Year OEM support with Next Business day support for any part or device failure Replacement	<i>No revision</i>		

vi. Computer Servers

No.	Feature	Minimum Technical Specifications	Reviewed Minimum Technical Specifications	Complied/NOT Complied	Provide explanation of how each of the Requirements (Requirement Description Column) will be achieved, and MUST make reference to the specific page/pages in the Tender Document where the explanation is located
1.	Quantity	Four (4)	No revision		
2.	Form Factor	2U Rack Mountable Server	No revision		
3.	No. of CPUs	Two (2) processors.	Two (2) processors per server		
4.	Cores	Number of Cores preferred: 36	Provide servers with two physical processors with a minimum of 36 cores per processor and a minimum of 2.4GHz processor speed		
5.	Cache	At least 39MB per core.	No revision		
6.	Memory	512GB	No revision		
7.	I/O Slots	8 PCIe Gen4 slots.	No revision		
8.	Storage	2 x 1.6 TB per server	No revision		
9.	Hard Drive Types	NVME	No revision		
10.	Power supply	220-240V Primary Power Supply, Hot Plug Power Supply, 220-240V	No revision		
		Redundant Power Supply.	No revision		

		European 220V power cables	No revision		
11.	Local Are a Network (LAN) Connectivity	Provide minimum four (4) 10GB RJ-45port	No revision		
12.	PCIe Card-NIC	2 x SC382 OCP3.0 Ethernet Adapter, 25GE(CX5),2-Port, SFP28(withoutOptical Transceiver), PCIE 3.0 X8	Provide 2 x PCIe slot compatible Network Interface Cards, Gen 3.0 x 8 (supporting Minimum 10GbE speeds), RJ45		
13.	Storage transceiver s	4 x Optical transceiver, 25GBase-SR,0.1km	No revision		
14.	Rack Support	Ready Rails™ II sliding rails for tool- less mounting in 4-post racks withsquare or unthreaded round holes or tooled mounting in 4-post threaded hole racks.	No revision		
15.	USB and VGA Ports	USB: 2 front/2 back/2 internal, VGA: 1front, 1 back.	No revision		
16.	RAID Support	Must be installed with a RAID Cardand must support a minimum RAID 10	No revision		
17.	Virtualization	The solution must have official Support for all mainstream hypervisors giving customers choice and avoiding vendor lock-in.	No revision		
		The solution must have Single management interface for multiple hypervisor deployments.	No revision		
		The solution must have the Ability to convert cluster from one hypervisor to another on the fly without data	No revision		

		movement.			
		The Solution must support Rapid VMcloning	<i>No revision</i>		
		Snapshots must be native storage-level with no impact on Guest VM performance.	<i>No revision</i>		
		The Solution must support Native VM level site-to-site replication that requires no add-on or separately licensed software regardless of number of VMs protected	<i>No revision</i>		
		The Solution must provide the ability to natively support different hypervisors between primary and DR data centers.	<i>No revision</i>		
		The solution must provide network traffic-management controls to allow flexible partitioning of physical NIC bandwidth between different network traffic types and allow user-defined network resource pools, enabling multitenancy deployment	<i>No revision</i>		
		The solution must also store a redundant copy of the data which is accessible immediately by the Hypervisor and application	<i>No revision</i>		
		The solution must provide zero downtime host patching with maintenance mode to move running workloads to other hosts on the platform with a consistent audit trail of the patching process. This should be via GUI.	<i>No revision</i>		

		The proposed solution must be able to inter-operate with another existing ecosystem in the data center (for e.g. It should be able to inter-operate with traditional FC/ISCSI or even Physical Server storage on other clusters so that the platform is not locked down and siloed into only HCI technology moving forward).	<i>No revision</i>		
		The solution must offer VM/ Hypervisor based replication integration to deliver VM-centric, replication that eliminates dependence on storage.	<i>No revision</i>		
		The Solution must provide automated live migrations for initial placement and balancing of available resources with rules to define affinity and/or anti affinity for workloads.	<i>No revision</i>		
		The solution must support AES-128, AES-256 and DES encryption.	<i>No revision</i>		
		The solution must come buddled with allthe required virtualization licenses	The server solution must support virtualization and must come buddled with all the required virtualization software licenses		
18.	Accessories	Provision of all accessories required for connectivity. These include but not limited to: - Three (3) Meter LAN Cables - At least two (2) per server.	<i>No revision</i>		

		Power Cables – Satisfactory to dualpower the servers.	<i>No revision</i>		
		Cage Nuts and Mounting Screws – Satisfactory to mount the servers.	<i>No revision</i>		
19.	Compute Operating System	The solution must be supplied with alicensed Hypervisor operating system	<i>No revision</i>		
20.	Operating system VMs	The bidder must supply Enterprise licenses that support unlimited data centre virtual resources	<i>No revision</i>		
21.	Data sheet/ Brochures	Attach product data sheet of the proposed product	<i>No revision</i>		
22.	Manufacturer's Authorizatio nletter	Provide manufacturers authorization letter for the proposed product	<i>No revision</i>		
23.	Warranty	One (1) Year OEM support with Next Business Day support for any part or device failure Replacement	<i>No revision</i>		

vii. Enterprise Storage

No.	Feature	Minimum Technical Specifications	Reviewed Minimum Technical Specifications	Complied/ NOT Complied	Provide explanation of how each of the Requirements (Requirement Description Column) will be achieved, and MUST make reference to the specific page/pages in the Tender Document where the explanation is located
1.	Quantity	One (1)	One (1) hybrid storage		
2.	Form Factor	Rack Mount	<i>No revision</i>		
3.	Storage	The proposed storage manufacturer must be recognized as a leader by Gartner. Please attach Gartner magic quadrant for 2021/2022 and specified model is not reaching end of support/life in the next 5 years	<i>No revision</i>		
4.	Storage Array	The proposed storage shall be a true unified storage to offer both SAN and NAS functionality without the requirement for file servers or gateways. Both support SAN & NAS Active-Active Solution	<i>No revision</i>		

5.	Solution Architecture	Controllers must work in active-active mode.	<i>No revision</i>		
6.	Controller Configuration	The Dual controllers must be configured with a minimum of 192GB Memory and 64 cores. And storage system must support scale-out	<i>No revision</i>		
7.	Controller interconnection	The connectivity between controllers and expansion should be 100Gbps RDMA based and not SAS.	<i>No revision</i>		
8.	Storage Capacity	60TB SSD Usable capacity. To support future expansion, The proposed storage should be scalable.	<i>No revision</i>		
9.	System Upgrade	Non-disruptive upgrade should be supported. Controllers do not need to be restarted during the upgrade.	<i>No revision</i>		
10.	Front-end host ports	The storage must support 8/16/32 Gbit/s Fibre Channel, 1GE, 10GE and 25GE fiber channel over ethernet.	<i>No revision</i>		
11.	Front-end Connectivity	The storage system should have at least 8 x 1 GE and 8 x 25 GE Ports.	<i>No revision</i>		
12.	RAID Support	The storage should support RAID 10, RAID 5, RAID 6, and Simultaneous failure of 3 disks.	<i>No revision</i>		
13.	Dynamic RAID	The storage solution support Dynamic Raid reconstruction.	<i>No revision</i>		
14.	Replication	i. Synchronous and asynchronous replications must be supported. ii. Synchronous	<i>No revision</i>		

		and asynchronous replications can be switched between each other based on links. iii.			
		iv. Fibre Channel and IP link replication must be supported.	<i>No revision</i>		
		v. The minimum user defined interval for asynchronous transmission of remote data must be 3 seconds. vi.	<i>No revision</i>		
		vii. Cross model replication must be supported viii.	<i>No revision</i>		
15.	Data deduplication	The Storage should support deduplication.	<i>No revision</i>		
16.	Snapshot Technology	i. ROW lossless snapshotmode should be used.	<i>No revision</i>		
		ii. Supports at least 60,000 snapshots for a single volume and at least 1 million snapshots for a system	<i>No revision</i>		
		iii. System can be configured to create a Snapshot every 3 s. iv.	<i>No revision</i>		
		v. The Snapshot feature does not	<i>No revision</i>		

		compromise system Performance			
		vi. It should support Cascading Snapshots.	<i>No revision</i>		
17.	QoS	The storage supports traffic Control by LUN, LUN Group or Host.	<i>No revision</i>		
18.	License	Perpetual license for the SAN and NAS features; license must be provided, the features include but not limit to Snapshot, Replication, Active-active storage deployment, WORM, QoS, Thin Provisioning, Quota, Multi-Tenancy, among others	<i>No revision</i>		
19.	Disk Risk Prediction	The storage should predict risky disks 30 days in advance on average to prepare disks in advance and replace them during off-peak hours to minimize the impact on services.	<i>No revision</i>		
20.	Data sheet/Brochure	Attach product data sheet of the proposed product	<i>No revision</i>		
21.	Manufacturer's Authorization letter	Provide manufacturers authorization letter for the proposed product	<i>No revision</i>		
22.	Warranty	One (1) Year OEM support with Next Business Day support for any part or device failure Replacement	<i>No revision</i>		

viii. Rack Cabinet

No .	Feature	Minimum Technical Specifications	Reviewed Minimum Technical Specifications	Complied/N OT Complied	Provide explanation of how each of the Requirements (Requirement Description Column) will be achieved, and MUST make reference to the specific page/pages in the Tender Document where the explanation is located
1	Quantity	One (1)	<i>No revision</i>		
2	Product Type	Rack	<i>No revision</i>		
3	Rack Size	9"	<i>No revision</i>		
4	Height (Rack Units)	42U	<i>No revision</i>		
5	Width	23.6 in	<i>No revision</i>		
6	Depth	42.1 in	<i>No revision</i>		
7	Height	78.3 in	<i>No revision</i>		
8	Weight	275.58 lbs	<i>No revision</i>		
9	Color	Black	<i>No revision</i>		
1	KVM switch	8-port analog, upgradeable to digital KVM switch with 1 local user, 1 power supply	<i>No revision</i>		
1	English	18.5", 1U,	<i>No revision</i>		

No .	Feature	Minimum Technical Specifications	Reviewed Minimum Technical Specifications	Complied/N OT Complied	Provide explanation of how each of the Requirements (Requirement Description Column) will be achieved, and MUST make reference to the specific page/pages in the Tender Document where the explanation is located
	Keyboard	International English Keyboard			
1	Power Distribution	Rack PDUs	<i>No revision</i>		

ix. Power Backup UPSs (Qty. 1)

No.	Feature	Minimum Technical Specifications	Reviewed Minimum Technical Specifications	Complied / NOT Complied	Provide explanation of how each of the Requirements (Requirement Description Column) will be achieved, and MUST make reference to the specific page/ pages in the Tender Document where the explanation is located
1.	Quantity	One (1)	<i>No revision</i>		
	Output		<i>No revision</i>		
2.	Output power capacity	10.0kWatts / 40.0kVA	<i>No revision</i>		
3.	Max Configurable Power (Watts)	10.0kWatts / 40.0kVA	<i>No revision</i>		
4.	Nominal Output Voltage	230V, 400V 3PH	<i>No revision</i>		
5.	Output Voltage Note	Configurable for 380 : 400 or 415 V 3 Phase nominal output voltage	<i>No revision</i>		
6.	Output Voltage Distortion	Less than 4 % at full load	<i>No revision</i>		
7.	Output Frequency (sync to mains)	47 - 53 Hz For 50 Hz nominal Sync to mains, 50 Hz +/- 0.1 % For 50 Hz nominal Unsynchronized	<i>No revision</i>		
8.	Other Output Voltages	380 V, 415 V	<i>No revision</i>		
9.	Load Crest Factor	Unlimited	<i>No revision</i>		

No.	Feature	Minimum Technical Specifications	Reviewed Minimum Technical Specifications	Complied / NOT Complied	Provide explanation of how each of the Requirements (Requirement Description Column) will be achieved, and MUST make reference to the specific page/pages in the Tender Document where the explanation is located
10.	Topology	Double conversion online	<i>No revision</i>		
11.	Waveform type	Sine wave	<i>No revision</i>		
12.	Overload Operation	10 minutes at 125% and 30 seconds at 150%	<i>No revision</i>		
13.	Output Connections	(1) Hard wire 4-wire (3P + E) (1) Screw terminals	<i>No revision</i>		
		(1) Hard wire 5-wire (3P + N + E)	<i>No revision</i>		
14.	Bypass	Built-in maintenance bypass, Built-in static bypass	<i>No revision</i>		
	Input		<i>No revision</i>		
15.	Nominal Input Voltage	415V 3PH	<i>No revision</i>		
16.	Input frequency	47 - 70 Hz Auto-sensing	<i>No revision</i>		
17.	Input Connections	Hard wire 5-wire (3P + N + E)	<i>No revision</i>		
18.	Input voltage range for main operations	80 - 485V	<i>No revision</i>		
19.	Other Input Voltages	380 V, 415 V	<i>No revision</i>		

No.	Feature	Minimum Technical Specifications	Reviewed Minimum Technical Specifications	Complied / NOT Complied	Provide explanation of how each of the Requirements (Requirement Description Column) will be achieved, and MUST make reference to the specific page/pages in the Tender Document where the explanation is located
20.	Input Power Factor at Full Load	0.99	<i>No revision</i>		
	Batteries & Runtime		<i>No revision</i>		
21.	Battery type	External battery system	External battery system with 40 12v100Ah Batteries		
22.	Typical recharge time	Expected run-time: 1 hour 30 mins	<i>No revision</i>		
23.	Replacement Battery	VRLA	<i>No revision</i>		
24.	Expected Battery Life (years)	7 years	<i>No revision</i>		
25.	Extendable Run Time	1	The backup time should be a minimum of one (1) hour		
			The typical recharge time is expected to be between an hour and an hour and a half as a minimum requirement		

No.	Feature	Minimum Technical Specifications	Reviewed Minimum Technical Specifications	Complied / NOT Complied	Provide explanation of how each of the Requirements (Requirement Description Column) will be achieved, and MUST make reference to the specific page/ pages in the Tender Document where the explanation is located
26.	Efficiency	View Efficiency Graph (Available in Technical Tab on site)	<i>No revision</i>		
	Communications & Management	The UPS will support the four servers, Network switches and the Firewall			
27.	Interface Port(s)	Dry contacts, RS485, SNMP	<i>No revision</i>		
28.	Control panel	Multifunction LCD status and control console	<i>No revision</i>		
	Environmental				
29.	Operating Temperature	0 - 40 °C	<i>No revision</i>		
30.	Operating Relative Humidity	0 - 95 %	<i>No revision</i>		
31.	Operating Elevation	0 - 1015.9meters	<i>No revision</i>		
32.	Storage Temperature	-50 - 40 °C	<i>No revision</i>		

No.	Feature	Minimum Technical Specifications	Reviewed Minimum Technical Specifications	Complied / NOT Complied	Provide explanation of how each of the Requirements (Requirement Description Column) will be achieved, and MUST make reference to the specific page/pages in the Tender Document where the explanation is located
33.	Storage Relative Humidity	0 - 95 %	<i>No revision</i>		
34.	Protection Class	IP20	<i>No revision</i>		
	Conformance				
35.	Licenses	Full	<i>No revision</i>		
36.	Warranty	Factory authorized Start-Up One (1) Year OEM support with Next Business day support for any part or device failure Replacement	<i>No revision</i>		

x. OPEN EDUCATION RESOURCE (OER) PLATFORM

No .	Feature	Minimum Technical Specification required	Reviewed Minimum Technical Specifications	Complied /Not Complied	Provide explanation of how each of the Requirements (Requirement Description Column) will be achieved, and MUST make reference to the specific page/ pages in the Tender Document where the explanation is located
1.	User Registration	i. The OER platform must have capability of user account management (CRUD operation).	No revision		

No .	Feature	Minimum Technical Specification required	Reviewed Minimum Technical Specifications	Complied /Not Complied	Provide explanation of how each of the Requirements (Requirement Description Column) will be achieved, and MUST make reference to the specific page/ pages in the Tender Document where the explanation is located
		ii. The OER platform must support the following authentication methods.	<i>No revision</i>		
		iii. Password-based authentication.	<i>No revision</i>		
		iv. Multi-factor authentication.	<i>No revision</i>		
		v. Token-based authentication.	<i>No revision</i>		
		vi. The OER platform must have the functionality to send a notification to users upon successful or failed registration via email.	<i>No revision</i>		
2.	E-Learning Content Management	i. The OER platform must allow upload of custom course content created by KICD or other training partners.	<i>No revision</i>		
		ii. The OER platform must support the following content types.	<i>No revision</i>		
		a) Text	<i>No revision</i>		
		b) Audio (mp3, wav and any other format)	<i>No revision</i>		
		c) Images (jpg, png, svg and any other format)	<i>No revision</i>		

No .	Feature	Minimum Technical Specification required	Reviewed Minimum Technical Specifications	Complied /Not Complied	Provide explanation of how each of the Requirements (Requirement Description Column) will be achieved, and MUST make reference to the specific page/ pages in the Tender Document where the explanation is located
		d) Animation (Html 5)	<i>No revision</i>		
		e) Epub3	<i>No revision</i>		
		f) H5p	<i>No revision</i>		
		iii. The OER platform must have Document editor for course creation tools;	<i>No revision</i>		
		a) Titles			
		b) Metadata	<i>No revision</i>		
		c) Full-text	<i>No revision</i>		
		d) Subject	<i>No revision</i>		
		e) Tags	<i>No revision</i>		
3.	E-Learning Content Delivery	i. The OER platform must implement responsive web design.	<i>No revision</i>		
		ii. The OER platform must have a mobile app integrated with the portal.	<i>No revision</i>		
		iii. The OER platform must provide Course information	<i>No revision</i>		

No .	Feature	Minimum Technical Specification required	Reviewed Minimum Technical Specifications	Complied /Not Complied	Provide explanation of how each of the Requirements (Requirement Description Column) will be achieved, and MUST make reference to the specific page/ pages in the Tender Document where the explanation is located
		(Course name, Content description, and Licence type).			
		iv. The OER platform must provide Course information (Course name, Content description, and Licence type).	<i>No revision</i>		
		v. The OER platform must deliver learners course progress status (Completion status and Assessment Score).	<i>No revision</i>		
		vi. The OER platform must have the functionality to enable learners, Authors profiles to have the following data at a minimum:	<i>No revision</i>		
		a) Contact data (Name, Email, phone number)	<i>No revision</i>		
		b) Course information (Assigned courses, License type and Completion Status)	<i>No revision</i>		
		vii. The OER platform must allow the course authors to use SCORM.	<i>No revision</i>		
		viii. The OER platform must support progress for partial completed work.	<i>No revision</i>		
		ix. The OER platform must provide a functionality to allow supervisors to enroll learner courses.	<i>No revision</i>		

No .	Feature	Minimum Technical Specification required	Reviewed Minimum Technical Specifications	Complied /Not Complied	Provide explanation of how each of the Requirements (Requirement Description Column) will be achieved, and MUST make reference to the specific page/ pages in the Tender Document where the explanation is located
		x. The OER platform must provide a functionality for learners to self-enroll to courses.	<i>No revision</i>		
		xi. The OER platform must have the functionality to allow supervisors monitor progress of courses assigned to learners	<i>No revision</i>		
		xii. The OER platform must have the functionality to manage and group course content into specific or related categories	<i>No revision</i>		
		xiii. The OER platform must have the functionality to manage and group users into specific or related groups/cohorts	<i>No revision</i>		
		xiv. The OER platform must have the functionality to allow for content to be displayed in various formats.	<i>No revision</i>		
		xv. The OER platform must have the functionality to allow for users to embed Multimedia within the platform so that linked content is played within the same page on the platform and not as a separate window.	<i>No revision</i>		
		xvi. The OER platform must support online notes taking	<i>No revision</i>		

No .	Feature	Minimum Technical Specification required	Reviewed Minimum Technical Specifications	Complied /Not Complied	Provide explanation of how each of the Requirements (Requirement Description Column) will be achieved, and MUST make reference to the specific page/ pages in the Tender Document where the explanation is located
		for learners while accessing course content.			
		xvii. The OER platform must have the functionality to allow for custom grading systems (both Cardinal and Ordinal).	<i>No revision</i>		
		xviii. The OER platform must have Text to Speech engine.	<i>No revision</i>		
		xix. The OER platform must have Course rating (Star rating) reviews.	<i>No revision</i>		
4.	Analytics and Reporting	i. The OER platform must provide an analytic dashboard to all the users of the platform based on the roles.	<i>No revision</i>		
		ii. The OER platform must have the functionality to gather learners' feedback (Star rating) with text reviews.	<i>No revision</i>		
		iii. The OER platform must provide a dashboard that displays the following details to supervisors at a minimum;	<i>No revision</i>		
		a) Learning content usage			
		b) Portal usage	<i>No revision</i>		
		c) Time spent on courses	<i>No revision</i>		

No	Feature	Minimum Technical Specification required	Reviewed Minimum Technical Specifications	Complied /Not Complied	Provide explanation of how each of the Requirements (Requirement Description Column) will be achieved, and MUST make reference to the specific page/ pages in the Tender Document where the explanation is located
		d) Learners' performance	<i>No revision</i>		
		iv. The OER platform analytic dashboard must have in-built customizable reports to track the following at a minimum;	<i>No revision</i>		
		a) Enrolled courses			
		b) Assigned courses	<i>No revision</i>		
		c) Completed courses	<i>No revision</i>		
		d) Passed courses	<i>No revision</i>		
		e) Failed courses	<i>No revision</i>		
		v. The OER platform must allow for exporting of reports and (in the following formats:	<i>No revision</i>		
		a) csv			
		b) xlsx	<i>No revision</i>		
		c) pdf	<i>No revision</i>		
5.	User Access	i. The OER platform must be web-based	<i>No revision</i>		

No	Feature	Minimum Technical Specification required	Reviewed Minimum Technical Specifications	Complied /Not Complied	Provide explanation of how each of the Requirements (Requirement Description Column) will be achieved, and MUST make reference to the specific page/ pages in the Tender Document where the explanation is located
6.	System Administration and Management Requirements	i. The OER platform must provide Role-based access control of users.	No revision		
		ii. The System Administration functionality of the OER platform must include the creation, modification and disabling of “Users”, or unique user identities for purposes of granting access and tracking usage of OER platform functions. The user information must include:	No revision		
		a) User login name and password			
		b) Guest login	No revision		
		c) Forgot password	No revision		
		d) Create account/Signup including user’s age consent	No revision		
		e) Recapture support	No revision		
		f) Name of the user	No revision		
		g) Email address	No revision		

No	Feature	Minimum Technical Specification required	Reviewed Minimum Technical Specifications	Complied /Not Complied	Provide explanation of how each of the Requirements (Requirement Description Column) will be achieved, and MUST make reference to the specific page/ pages in the Tender Document where the explanation is located
		h) Custom fields	No revision		
		<i>Users in this context include System administrators, Authors, Editors, end users (Learners), Administrative Users, Teachers and Content Managers, auditors depending on user role</i>			
		iii. The System Administration functionality of the OER platform must enable the use of different roles e.g., “Learners”, “Administrators”, “Teachers” “Content authors” and “Content Managers” with appropriate rights. In particular the following roles must be defined;	No revision		
		a) System administrators			
		b) Teachers	No revision		
		c) Content Managers	No revision		
		d) Learners	No revision		
		e) Guests	No revision		
		f) Custom roles	No revision		

No	Feature	Minimum Technical Specification required	Reviewed Minimum Technical Specifications	Complied /Not Complied	Provide explanation of how each of the Requirements (Requirement Description Column) will be achieved, and MUST make reference to the specific page/ pages in the Tender Document where the explanation is located
		iv. The following permissions must be defined for the different access roles;	<i>No revision</i>		
		a) Read	<i>No revision</i>		
		b) Write	<i>No revision</i>		
		c) Modify	<i>No revision</i>		
		d) Delete	<i>No revision</i>		
		v. The OER platform must not allow deletion of registered users unless permission is granted.	<i>No revision</i>		
		vi. The OER platform must allow users to close their accounts at any time, while their content remains in the platform.	<i>No revision</i>		
		vii. The OER platform must allow disabling of user accounts.	<i>No revision</i>		
		viii. The OER platform must provide User Management CRUD operations and revocation of Rights to either Users and/or User roles.	<i>No revision</i>		
		a) Learners	<i>No revision</i>		

No .	Feature	Minimum Technical Specification required	Reviewed Minimum Technical Specifications	Complied /Not Complied	Provide explanation of how each of the Requirements (Requirement Description Column) will be achieved, and MUST make reference to the specific page/ pages in the Tender Document where the explanation is located
		b) Supervisors	<i>No revision</i>		
		c) Content Authors	<i>No revision</i>		
		d) Administrators	<i>No revision</i>		
		ix. The System Administration functionality of the OER platform must provide for the integration with the following IT infrastructure systems;	<i>No revision</i>		
		a) E-mail server	<i>No revision</i>		
		b) Log aggregation server	<i>No revision</i>		
		c) File server	<i>No revision</i>		
		d) Custom applications in use (Online collaboration tools)	<i>No revision</i>		
7.	Monitoring, Alerting and Reporting Requirements	i. The OER platform must have functionality to send emails to all users.	<i>No revision</i>		
		ii. The OER platform must be delivered and configured with the functionality to enable learners to query for real-time course content and data.	<i>No revision</i>		

No .	Feature	Minimum Technical Specification required	Reviewed Minimum Technical Specifications	Complied /Not Complied	Provide explanation of how each of the Requirements (Requirement Description Column) will be achieved, and MUST make reference to the specific page/ pages in the Tender Document where the explanation is located
		iii. The OER platform must be delivered with a customizable library of reports.	<i>No revision</i>		
		iv. The OER platform must allow users be able to sort output by one or multiple data type for example specifying columns.	<i>No revision</i>		
		v. The OER platform must be delivered and configured with the functionality to enable Users to view statistics and other details of historical data stored in the OER platform.	<i>No revision</i>		
		vi. The OER platform must be delivered and configured with the functionality to produce reports generated by the OER platform in the following file formats;	<i>No revision</i>		
		a) PDF	<i>No revision</i>		
		b) ODF standards	<i>No revision</i>		
		vii. The OER platform must have the functionality to integrate reports with Business Intelligence tools.	<i>No revision</i>		
8.	System Confidentiality, Integrity, and	i. The OER platform must be delivered and configured to secure access to its interfaces using the following protocols;	<i>No revision</i>		

No .	Feature	Minimum Technical Specification required	Reviewed Minimum Technical Specifications	Complied /Not Complied	Provide explanation of how each of the Requirements (Requirement Description Column) will be achieved, and MUST make reference to the specific page/ pages in the Tender Document where the explanation located
	Availability Requirements	a) Web-based user interface	<i>No revision</i>		
		b) Directory protocols	<i>No revision</i>		
		ii. The OER platform must be delivered and configured with the functionality to encrypt all files and data sets stored on the OER platform using Advanced Encryption Standard (AES)-256-bit based encryption.	<i>No revision</i>		
		iii. The OER platform must contain Website Cookies to enhance user experience	<i>No revision</i>		
9.	System Performance and Capacity Requirements	i. The OER platform must be capable of achieving a minimum of 500 concurrent Ordinary Users.	<i>No revision</i>		
		ii. The OER platform must have the functionality to manage spikes in user traffic without compromising on performance	<i>No revision</i>		
10.	Technology Requirements	i. The OER platform must be a secure web application using the HTTPS protocol.	<i>No revision</i>		
		ii. The OER platform must be able to support implementation on container-based environments.	<i>No revision</i>		
		iii. The OER platform must be capable of running in multiple Operating systems;	<i>No revision</i>		

No	Feature	Minimum Technical Specification required	Reviewed Minimum Technical Specifications	Complied /Not Complied	Provide explanation of how each of the Requirements (Requirement Description Column) will be achieved, and MUST make reference to the specific page/ pages in the Tender Document where the explanation is located
		a) Microsoft Windows	<i>No revision</i>		
		b) Unix/Linux	<i>No revision</i>		
		iv. The OER platform must be able to support use of various relational databases that are open source	<i>No revision</i>		
		v. The OER platform web interface must be accessible in the commonly used web browsers which support JavaScript ES6	<i>No revision</i>		
		vi. The OER platform must have plugins that support multi-language to cater for Swahili speaking users	<i>No revision</i>		
11.	Technology Requirements	i. The OER platform must be a secure web application using the HTTPS protocol	<i>No revision</i>		
		ii. The OER platform must be able to support implementation on container-based environments	<i>No revision</i>		
		iii. The OER platform must be capable of running in multiple Operating systems:	<i>No revision</i>		
		a) Microsoft Windows	<i>No revision</i>		
		b) Unix/Linux	<i>No revision</i>		

No	Feature	Minimum Technical Specification required	Reviewed Minimum Technical Specifications	Complied /Not Complied	Provide explanation of how each of the Requirements (Requirement Description Column) will be achieved, and MUST make reference to the specific page/ pages in the Tender Document where the explanation located
12.		iv. The OER platform must be able to support use of various relational databases that are open source.	No revision		
		v. The OER platform web interface must be accessible in the commonly used web browsers which support JavaScript ES6.	No revision		
		vi. The OER platform must have plugins that support multi-language to cater for Swahili speaking users.	No revision		
	Security	i. The OER solution must require authentication either through use of username/email address and password/passcode, AD authentication or OAuth authentication (email).	No revision		
		ii. The solution must not allow concurrent logins from a single user	No revision		
		iii. The solution must ensure the password/passcode are masked on logons	No revision		
		iv. The solution must be accessible over the internet using Secure Internet protocols like HTTPS/SSL	No revision		
		v. The solution must consist of encryption mechanisms for	No revision		

No .	Feature	Minimum Technical Specification required	Reviewed Minimum Technical Specifications	Complied /Not Complied	Provide explanation of how each of the Requirements (Requirement Description Column) will be achieved, and MUST make reference to the specific page/ pages in the Tender Document where the explanation is located
		authentication and data transmission through the network and/or cloud			
		vi. The solution must consist of audit logs attributes (Log entry identifier, Date and time stamp, transaction (event) type, User logged on, Operation performed, Source and destination of IP/Name of OER platform).	<i>No revision</i>		
		vii. The solution must provide the functionality of data reduction at the database level	<i>No revision</i>		
		viii. The solution must consist of digital signatures recognizable by most commonly Web browsers which support JavaScript ES6	<i>No revision</i>		
		ix. Login to the OER platform must require authentication either through entry of a username/email address and password/passcode, AD authentication or OAuth authentication	<i>No revision</i>		
		x. The OER platform must allow system administrators to specify the numbers of concurrent logins for a single user.	<i>No revision</i>		

No	Feature	Minimum Technical Specification required	Reviewed Minimum Technical Specifications	Complied /Not Complied	Provide explanation of how each of the Requirements (Requirement Description Column) will be achieved, and MUST make reference to the specific page/ pages in the Tender Document where the explanation located
		xi. The OER platform must ensure that when the user logs on to the application, the password/passcode is masked.	<i>No revision</i>		
		xii. The OER platform must enable the user to log out of the system.	<i>No revision</i>		
		xiii. The OER platform must not allow successful login for an invalid user	<i>No revision</i>		
		xiv. The OER platform must display an error message when a user enters an incorrect username/password combination.	<i>No revision</i>		
		xv. The OER platform must allow system administrators the flexibility on whether or not force users to change passwords at first logon after account creation or password reset.	<i>No revision</i>		
		xvi. The OER platform must be configurable to allow users to change their passwords as and when necessary.	<i>No revision</i>		
		xvii. The OER platform must be configurable to set a maximum password age (in days) that a password can be	<i>No revision</i>		

No .	Feature	Minimum Technical Specification required	Reviewed Minimum Technical Specifications	Complied /Not Complied	Provide explanation of how each of the Requirements (Requirement Description Column) will be achieved, and MUST make reference to the specific page/ pages in the Tender Document where the explanation is located
		used before the application requires the user to change it.			
		xviii. The OER platform must allow system administrators configure passwords complexity applicable to all users	<i>No revision</i>		
		xix. The OER platform must be configurable to lock an account automatically after a specified number of unsuccessful logon attempts.	<i>No revision</i>		
		xx. The OER platform must be configurable to time out a user's session automatically after a specified period of inactivity (session time out).	<i>No revision</i>		
		xxi. The OER platform must encrypt user login information to protect the confidentiality of user authentication data (user id, password, passcode) during transmission between the user client or web browser and the application backend.	<i>No revision</i>		
		xxii. The OER platform must record successful and unsuccessful user log-in, log-off and transaction events in an audit log. (These must be	<i>No revision</i>		

No	Feature	Minimum Technical Specification required	Reviewed Minimum Technical Specifications	Complied /Not Complied	Provide explanation of how each of the Requirements (Requirement Description Column) will be achieved, and MUST make reference to the specific page/ pages in the Tender Document where the explanation located
		exportable in PDF, ODF standards and CSV formats)			
		xxiii. The OER platform must record account creation, account deletion, account locking, account enabling events in an audit log	No revision		
		xxiv. The OER platform must have each audit log entry, at a minimum, containing the following attributes:	No revision		
		a) Log entry identifier	No revision		
		b) Date and time stamp	No revision		
		c) Transaction (event) type	No revision		
		d) User logged on	No revision		
		e) Operation performed	No revision		
		f) Source destination and of IP/Name	No revision		

No	Feature	Minimum Technical Specification required	Reviewed Minimum Technical Specifications	Complied /Not Complied	Provide explanation of how each of the Requirements (Requirement Description Column) will be achieved, and MUST make reference to the specific page/ pages in the Tender Document where the explanation is located
		xxv. The OER platform must be protected from unauthorized access, modification, or deletion (e.g., access controls, encryption, digital signatures, etc.) of audit logs.	<i>No revision</i>		
		xxvi. The OER platform must not allow an unauthorized user to create user accounts and assign user roles	<i>No revision</i>		
		xxvii. The OER platform must allow user account details to be modified by an authorized user	<i>No revision</i>		
		xxviii. The OER platform must not allow an unauthorized user to modify user account details	<i>No revision</i>		
		xxix. The OER platform must allow System administrators to assign and revoke user roles & groups	<i>No revision</i>		
		xxx. The OER platform must allow Managers to create and delete user groups	<i>No revision</i>		
		xxxi. The OER platform must be compatible with the existing KEC portals	<i>No revision</i>		
		xxii. The OER platform must be able to function where any antivirus software is installed in a device.	<i>No revision</i>		

No	Feature	Minimum Technical Specification required	Reviewed Minimum Technical Specifications	Complied /Not Complied	Provide explanation of how each of the Requirements (Requirement Description Column) will be achieved, and MUST make reference to the specific page/ pages in the Tender Document where the explanation located
		xxiii. The OER platform must run on multiple Web servers technologies	<i>No revision</i>		
		xxiv. The OER platform must allow for use of load balancers to manage scalability and performance	<i>No revision</i>		
		xxv. The OER platform must be installed with the most recently available software versions, updates and patches.	<i>No revision</i>		
		xxvi. The OER platform Web server must be delivered and configured in accordance with secure configuration best practice guidelines. This must include:	<i>No revision</i>		
		xxvii. 1. Disabling insecure or unused services, ports and protocols	<i>No revision</i>		
		xxviii. 2. Securely configuring the needed services.	<i>No revision</i>		
13.	Audit Log Requirements	i. The OER platform must be delivered and configured with the functionality to log the following categories of events to the OER platform audit log:	<i>No revision</i>		
		a) Course updates	<i>No revision</i>		

No .	Feature	Minimum Technical Specification required	Reviewed Minimum Technical Specifications	Complied /Not Complied	Provide explanation of how each of the Requirements (Requirement Description Column) will be achieved, and MUST make reference to the specific page/ pages in the Tender Document where the explanation is located
		b) System Configuration changes	No revision		
		c) User actions	No revision		
		d) Event triggered	No revision		
		ii. The OER platform must log all activities carried out on a user record. The log records must include the following fields, at a minimum:	No revision		
		a) Unique identifier of activity	No revision		
		b) User id that carried out the activity	No revision		
		c) The activity initiated	No revision		
		d) The outcome of the activity	No revision		
		e) Date and timestamp of activity	No revision		
		iii. The OER platform audit log of system configuration changes must include the following fields, at a minimum:	No revision		

No	Feature	Minimum Technical Specification required	Reviewed Minimum Technical Specifications	Complied /Not Complied	Provide explanation of how each of the Requirements (Requirement Description Column) will be achieved, and MUST make reference to the specific page/ pages in the Tender Document where the explanation located
		a) Configuration item subjected to change	<i>No revision</i>		
		b) Identity of the user initiating the configuration change	<i>No revision</i>		
		c) Description of the configuration change	<i>No revision</i>		
		d) Date and timestamp of activity	<i>No revision</i>		
		iv. The OER platform audit log of Ordinary and Administrative User activity must include the following fields, at a minimum:	<i>No revision</i>		
		a) Identity of the User	<i>No revision</i>		
		b) Description of the Activity	<i>No revision</i>		
		c) Date and timestamp of activity (The timestamp must indicate: Date, Hour, Minutes and Seconds)	<i>No revision</i>		
		d) Source IP address	<i>No revision</i>		
		v. The OER platform audit log of Ordinary and Administrative User activity	<i>No revision</i>		

No .	Feature	Minimum Technical Specification required	Reviewed Minimum Technical Specifications	Complied /Not Complied	Provide explanation of how each of the Requirements (Requirement Description Column) will be achieved, and MUST make reference to the specific page/ pages in the Tender Document where the explanation is located
		must include the following activities, at a minimum:			
		a) Username change	<i>No revision</i>		
		b) Name change	<i>No revision</i>		
		c) Email address change	<i>No revision</i>		
		d) Successful login	<i>No revision</i>		
		e) Unsuccessful login	<i>No revision</i>		
		f) Password change	<i>No revision</i>		
		g) Logoff	<i>No revision</i>		
		vi. The OER platform must be delivered and configured with the functionality to select audit logs to be viewed, based on the following parameters, as a minimum:	<i>No revision</i>		
		a) Date and Time range	<i>No revision</i>		
		b) User or User Group	<i>No revision</i>		

No	Feature	Minimum Technical Specification required	Reviewed Minimum Technical Specifications	Complied /Not Complied	Provide explanation of how each of the Requirements (Requirement Description Column) will be achieved, and MUST make reference to the specific page/ pages in the Tender Document where the explanation located
		c) Type of event	<i>No revision</i>		
		vii. The OER platform must provide the functionality to specify the log rotation duration.	<i>No revision</i>		
		viii. The OER platform must have the functionality to securely integrate with a third-party log aggregator system.	<i>No revision</i>		
14.	Licensing and Maintenance Requirements	i. The vendor must provide licensing requirements that is perpetual for the OER platform and all third-party software needed for the installation and operation of the system.	<i>No revision</i>		
		ii. The vendor must provide access to the source code or provide an open-source solution which provides free access to the source code.	<i>No revision</i>		
		iii. The OER platform vendor must include a draft SLA in their bid for the operation duration of the system.	<i>No revision</i>		
15.	Documentation Requirements	The OER platform must be supplied with documentation in English to describe various aspects of the system. e.g., Artifacts, user guides etc.	<i>No revision</i>		

No	Feature	Minimum Technical Specification required	Reviewed Minimum Technical Specifications	Complied /Not Complied	Provide explanation of how each of the Requirements (Requirement Description Column) will be achieved, and MUST make reference to the specific page/ pages in the Tender Document where the explanation is located
16.	General Requirements	i. The system must come with an extensive and easily available resource base	<i>No revision</i>		
		ii. The OER platform must have the functionality to enable learners engage in collaborative, social and team-based learning. Learners must discuss content in real-time.	<i>No revision</i>		
		<i>This must be achieved through any of the following:</i>	<i>No revision</i>		
		a) <i>discussion boards</i>	<i>No revision</i>		
		b) <i>chats</i>	<i>No revision</i>		
		c) <i>forums</i>	<i>No revision</i>		
		d) <i>learning communities</i>	<i>No revision</i>		
		iii. The OER platform app must be able to run on the following mobile device OS:	<i>No revision</i>		
		a) iOS	<i>No revision</i>		
		b) Android	<i>No revision</i>		

No.	Feature	Minimum Technical Specification required	Reviewed Minimum Technical Specifications	Complied /Not Complied	Provide explanation of how each of the Requirements (Requirement Description Column) will be achieved, and MUST make reference to the specific page/ pages in the Tender Document where the explanation located
		c) Responsive app	<i>No revision</i>		

xi. Mobile Application

No.	Feature	Minimum Technical specifications	Reviewed Minimum Technical Specifications	Complied/ NOT Complied	Provide explanation of how each of the Requirements (Requirement Description Column) will be achieved, and MUST make reference to the specific page/ pages in the Tender Document where the explanation is located
1.	Framework and	i. The OER platform mobile app must be built using web technologies	<i>No revision</i>		

No.	Feature	Minimum Technical specifications	Reviewed Minimum Technical Specifications	Complied/ NOT Complied	Provide explanation of how each of the Requirements (Requirement Description Column) will be achieved, and MUST make reference to the specific page/pages in the Tender Document where the explanation is located
	Technology Stack	such as HTML, CSS, and JavaScript.			
		ii. It must use the Ionic framework to build a cross-platform mobile application using web technologies.	<i>No revision</i>		
		iii. Apache Cordova must be used to package the web application as a native app for Android and iOS.	<i>No revision</i>		
		iv. AngularJS must be used to make the app faster and more responsive.	<i>No revision</i>		
		v. The app must use RxJS library for efficient and reliable handling of events, asynchronous operations and data streams.	<i>No revision</i>		
2.	Core Components and Architecture	i. The app must use a hybrid architecture, combining web-based content with native app components.	<i>No revision</i>		

No.	Feature	Minimum specifications	Technical	Reviewed Minimum Technical Specifications	Complied/ NOT Complied	Provide explanation of how each of the Requirements (Requirement Description Column) will be achieved, and MUST make reference to the specific page/pages in the Tender Document where the explanation is located
		ii. The core components must be written in JavaScript and use the Ionic framework.		<i>No revision</i>		
		iii. The app's core components must include views for courses, resources, activities, messages, calendar events, and user profiles.		<i>No revision</i>		
		iv. The App components must communicate with the OER platform using APIs (Application Programming Interfaces) to fetch and update data.		<i>No revision</i>		
3.	Authentication and Security	i. Mobile app must use OAuth 2.0 for secure authentication, allowing users to log in using their OER platform credentials.		<i>No revision</i>		
		ii. For additional security, tokens must be used to authenticate requests to		<i>No revision</i>		

No.	Feature	Minimum Technical specifications	Reviewed Minimum Technical Specifications	Complied/ NOT Complied	Provide explanation of how each of the Requirements (Requirement Description Column) will be achieved, and MUST make reference to the specific page/ pages in the Tender Document where the explanation is located
		the OER platform's APIs.			
		Communication between the app and the server must be secured using HTTPS encryption.	<i>No revision</i>		
4.	Notifications and Push Messaging	Firestore Cloud Messaging (FCM) must be integrated for push notifications to users of Android, iOS, and web apps versions of the mobile app to deliver real-time updates, such as new announcements, messages, and upcoming events.	<i>No revision</i>		
5.	User Interface and Design	i. The app must use a mobile-first design approach, providing a user-friendly interface that adapts to various screen sizes and orientations.	<i>No revision</i>		
		ii. The app must have a standard layout across all pages and must adapt to various screen sizes and orientations.	<i>No revision</i>		

No.	Feature	Minimum specifications	Technical	Reviewed Minimum Technical Specifications	Complied/ NOT Complied	Provide explanation of how each of the Requirements (Requirement Description Column) will be achieved, and MUST make reference to the specific page/ pages in the Tender Document where the explanation is located
6.	Offline Access and Storage	i. The app must provide offline access to course content by allowing users to download resources and activities.		<i>No revision</i>		
		ii. Local storage mechanisms, such as SQLite, can be used to store downloaded content, user preferences, and app data for offline usage.		<i>No revision</i>		
7.	Third-Party Integrations	The app may integrate with other tools and services, such as plugins for video conferencing, document collaboration, and multimedia content.		<i>No revision</i>		

xii. Secure Sockets Layer

No.	Requirement	Reviewed Minimum Technical Specifications	Complied/ Not Complied
1.	The vendor must provide a wildcard SSL certificate that will be installed on <u>*.kec.ac.ke</u> and deployed to its various sub-domains.	<i>No revision</i>	
2.	The SSL certificate must be a domain validated SSL certificate.	<i>No revision</i>	
3.	The SSL certificate must support RSA key encryption of 1024/ 2048/4096 bits	<i>No revision</i>	
4.	The vendor must provide the SSL certificate which must be valid for a period of five (5) years	<i>No revision</i>	

xiii. Technical Training

No.	Item	Requirement	Complied/Not Complied	Remarks (if any)
1.	Training	The Bidder must offer technical training for system administration on all hardware and software solutions – Compute, Network, Storage and Security.		

A bidders must meet all the specifications for each of hardware required and the system for their bid to successfully proceed to the next stage of Technical Capacity Evaluation

A. Technical Capacity Evaluation

The Tenderer that will qualify at the technical Compliance evaluation stage shall be subjected to the Technical Capacity Evaluation. The Technical proposal shall be marked out of 100% with a passmark of 75%.

No.	Requirement	Criteria Description	Weight
1.	Experience of the Firm	Bidders must provide at least three (3) recommendation letters from reference	30

		sites where the bidders have implemented a similar System {5 marks for each recommendation letter from the three (3) referenced sites (Max. 15 Marks). Bidders must also attach Work orders/Purchase orders for the supply and installation of the Systems referenced above (5 marks for each Work/Purchase order copy for 3 orders (Max.15 Marks).	
2.	Human Resource Capacity	Bidders must submit a list of proposed Project staff team by specialty, the tasks that would be assigned to each staff team member and the timings. a) Project Manager Minimum qualifications and competence of the Project Manager for the project Must be minimum Degree holder with experience of at least five (5) years' in the implementation and maintenance of ICT projects. Attach CV (Max. 14 Marks). {4 marks for Signed CV; 5 marks for a minimum of a Degree; and 5 marks for minimum five (5) years' experience in the implementation and maintenance of ICT projects} a) Technical Personnel Must provide a minimum of two (2) technical personnel having at least a degree or diploma in IT related field with at least five (5) years' experience in implementation of ICT Systems. Attach signed CVs (Max 26 marks). {3 marks for each Signed CV (Max. 6 marks), 6 marks for degree or diploma certification in IT related field for each technical personnel (Max. 12 marks), 4 marks for minimum five (5) years' experience in the implementation of IT Systems for each personnel (Max. 8 marks)}.	40

3.	Project Implementation plan	Bidders must attach a Project Implementation plan which must contain: i. Detailed activities and milestones, (8 marks) ii. Timelines, and (4 Marks) iii. Resources required (3 Marks)	15
4.	Financial Capacity	Bidders must have an average Annual turnover of at least Kshs.100 million as per the bidder's Annual audited accounts for the last three (3)years (2020, 2021 and 2022) Max. 15 marks.	15
Total			100

A. FINANCIAL EVALUATION

Tenderers who score less than the required pass in the technical capacity evaluation will be automatically disqualified. Tenderers who pass the technical evaluation will be evaluated further. Bidders must break down the financial bid for each of the items as detailed below:

No.	Item Description	Qty.	Unit Cost (Inclusive of Taxes)	Total Cost (Inclusive of Taxes)
A.	Supply, delivery, implementation and maintenance of an open education resource system and the associated hardware			
i.	Supply, Delivery and Set up of Hardware and related accessories:			
	Servers	4		
	Network Switches inclusive of SFP Modules and connectivity cabling (fibre cables and UTP Patch codes)	4		
	Security Firewall	2		
	SAN Switches with fibre cables and FC connectors	2		
	Enterprise Storage	2		
	40kVA UPSs	1		
	Rack Cabinet	1		
ii.	Software & Licenses			
	Open Education Resource (OER)	1		
	SSL Certificate	1		
	Enterprise Operating System (OS) Licenses for all servers	20		
	Enterprise Database Software Licenses for the DB servers	10		

iii.	<i>Training</i>			
	Cost of training a minimum of 12 technical staff	Lot		
	<i>Item Description</i>		<i>Annual Costs (Inclusive of Taxes)</i>	<i>Total Costs (Inclusive of Taxes)</i>
Total Cost To be carried to the Financial Proposal - Form of Tender				

Note:

- a) The total cost to be carried to the FORM OF TENDER.
- b) The assumption of the Authority is that the supplier will not charge for the licenses for the Consumers of the system.