



नेपाल सरकार

शिक्षा, विज्ञान तथा प्रविधि मन्त्रालय

शिक्षा तथा मानव स्रोत विकास केन्द्र

सानोठिमी, भक्तपुर



प.स.: २०७९।८०

च.नं.: ३१५

मिति : २०७९।०९।२९

विषय : राष्ट्रपति शैक्षिक सुधार कार्यक्रम अन्तर्गतका (ICT lab/ LMS System)

स्पेसिफिकेसन सम्बन्धमा ।

श्री स्थानीय तह
सबै ।

प्रस्तुत विषयमा चालु आ.व. २०७९।८० को स्वीकृत वार्षिक कार्यक्रम तर्फ बजशिनं ३५०००१०९ राष्ट्रपति शैक्षिक सुधार कार्यक्रम अन्तर्गतका क्रियाकलापहरू मध्ये शिक्षा, विज्ञान तथा प्रविधि मन्त्रालय (मा.मन्त्रिस्तर) को मिति २०७९।०५।२९ गतेको निर्णय अनुसार विद्यालय भौतिक पूर्वाधार विकास कार्यक्रम अन्तर्गत २ कोठे र ४ कोठे भवन एवम् विद्यालयमा सूचना प्रविधि प्रयोगशाला तथा पुस्तकालय स्थापनाका लागि अनुदान कार्यक्रम अन्तर्गत ICT Lab को कार्यक्रम प्राप्त गर्ने विद्यालयहरूको विस्तृत विवरण केन्द्रको वेबसाइट (www.cehrd.gov.np) मार्फत यस अगाडि नै सार्वजनिक भइसकेको व्यहोरा अवगत नै छ। सो सम्बन्धमा **ICT Lab / LMS software** को स्पेसिफिकेसन भन्दा न्यूनतम नहुने गरेर खरिद प्रक्रिया कार्यान्वयनका लागि पठाइएको व्यहोरा केन्द्रको मिति २०७९।०९।२९ गतेको निर्णय अनुसार अनुरोध छ ।

बोधार्थ:

- श्री शिक्षा विकास तथा समन्वय इकाइ,
- सबै: आवश्यक समन्वय र सहजीकरणका लागि ।
- श्री कार्यक्रम प्राप्त गर्ने विद्यालयहरू, सबै: जानकारीका लागि ।

गंगा भण्डारी

आई.सि.टि. बिज्ञ

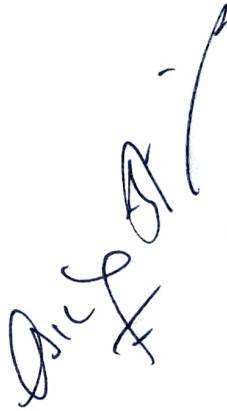
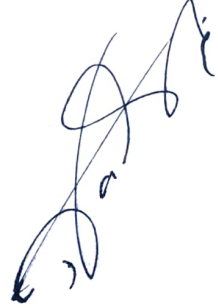
Instructions and Recommendations

For

Establishment of ICT Lab/Upgradation and Management of Learning management system with Digital Library Under Presidential Educational Improvement Program (F.Y.2079/80)

Under this program, each selected school will receive the grant amount Rs. 6,50,000 (In Words: Rupees Six Lakhs Fifty Thousand only). With this program, IT Lab is to be established or improved and necessary management including the upgradation of server, networking, and getting content for the learning management system with Digital Library (LMS Software) is to be done for its proper operation. The following activities are recommended for the program:

1. Development/Deployment of Integrated Digital Library with learning management system (Software)– 1 Set
2. Establishment of Educational AVR System – 1 Set
3. Provision of All-in-One Computer – 1 Set
4. Provision of Multifunction Printer – 1 Set
5. Trolley Stand with Locking – 1 Set
6. Networking and Electrical Wiring



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सामन्वय, भक्तपुर

1. Development/Deployment of Integrated Digital Library with Learning Management System (LMS software)

Schools should develop or deploy a Learning management system with digital library (LMS including academic curriculum and others learning resources). The hosted software and server should be managed by the school. LMS with Digital library should contain an adequate digital books, digital content, school curriculum, and other learning materials. System software should support any type of hardware devices like Desktop PC, Laptop, Tab and Mobile to access centrally hosted system and LMS is anytime, from anywhere through the internet connection. The internet connection and school internal networking is subjected to activity No 6.

The following features/specifications are expected on the learning management system (LMS software):

- The system should have an integrated e-library/ digital library system and learning portal which is developed by CEHRD.
- System should be applicable for ECD/ Pre-primary up to secondary education level (i.e from ECD to Grade 12) and allow to manage the courses, syllabus, worksheets, teaching lesson plan with resources.
- The system must have learning modules with immediate auto learning outcome evaluation.
- System should be able to create an objective exam with an automatic marking system and immediate result generation.
- The system developed should be highly secure, made using high level language in which the code cannot be directly accessed or altered in the server.
- The system should have different user portals for students, parents, staff, administrators, coordinators, admin, super admins accessible through secure login with two factor authentication mode allowing all the notification associated with students to be transmitted in between both parents and teachers.
- System must be available on multiple web browsers (Chrome,Safari, Mozila) and in mobile (both in android and ios mobile devices).
- There should be a secure connection between server and user login device.
- System should be a centralized application which can control multiple schools, a segregated database to store central information, school metadata , academic year wise separate database system to manage academic year data for each school , a configuration with academic year navigator to archive and access the previous years data.
- The system should show a combined student performance analysis report of the complete achievements of the students, displayed in a single User Interface, accessible to both teachers and parents and also admin.



- The system should allow users to conduct virtual online classes to targeted students or virtual meetings among chosen staff supported by features like class recording, whiteboards/smart board , teacher-student chats for combined effective learning.
- System should allow a Question Answer Platform in between student and subject teachers.
- The system should have a learning management system with audio visual content and other reading materials approved by CDC Nepal.
- System should allow the marking configuration such as number marking or grade point or image format assessment scale for pre primary students.
- The system should allow customization of the admission and recruitment form according to the school requirement and have staff and student management.
- System must have staff leave management and notify the admin about staff's leave and manage substitute teachers for the class.
- The system should give centralized control for the academic year wise calendar events for holidays and other events/occasions.
- The system should have techniques of flip learning, adaptive learning, visual learning involving learning and e-learning mechanisms.
- System should have permission based Notification via different communication channels such as display in notice boards, sms notification, email notification, mobile notifications and various other platform's chat bot notification,if required.
- System should allow the admin to schedule reminder notices to send to students, parents or staff on a chosen date.
- The system should help in keeping records of books, journals, catalog, Youtube, Links etc in the digital library.
- System should have features for student attendance, bulk student attendance and leave management. The system should allow parents to apply leave on behalf of their children, see leave applied by their children.
- The system should notify admin on class wise student absence with detailed reports and their parents about their children's absence.
- The system must have a customizable dashboard for monitoring administrators and user's activities.
- The role of Super admin should be integrated in the portal dashboard of CEHRD so that the super admin can figure out the number of users through a report.
- The system should have a common platform where Management/Board Member, principal, Teachers, Parents, Teachers can access the data from system as per the authorized user wise role and can discuss with each other as per thee need
- The system should have functionality for skill development like writing articles, using of links, uploading media, sharing in the system and publishing them for knowledge sharing repository contents.
- The system allows enabling and disabling any users access to the system/ specific services or permissions to any role or users in the system, also allowing to add custom roles with proper control of user ,role and permission management.
- The system should have an admin approval system for publishing any media/ articles information in the portals by student or parents or staff.



- Learning Management Portal to create a digital library by adding the file resources
- The system should have features to create custom report card layout configuration and report publication.
- The system should have contained class and routine management, class control, t subjective/objective questions, exam routine management and student/staff cards management.
- The system should have MCQ-based quiz and group learning functionality,i.e Subject Wise Game-based learning modules like for mathematics, science,, social etc.
- System should have School Profile for the whole education communities, Personal Profile pages for teachers, students and admins. Family pages where parent teacher association is maintained and group pages/ discussion portals to share articles, media files and views via post .
- System should allow students, staffs to create a self identity via profile and cover profile pictures controlled by a specific widget manager.

Besides these, Vendor /Service Provider must provide necessary face to face training for the teacher to use the system and related to digital pedagogy. Following areas are needed to be covered in the training programs

- ICT introduction - everyday usage of digital technology includes when you use a computer, tablet or mobile phone , send email, browse the internet, make video call etc
- Preparation of different type of document file and worksheets,
- Use of Email, internet and social media in teaching learning activities
- Web Editing and Image Editing
- Develop presentation file through presentation software
- General multimedia and database
- Use of digital library and mis software
- Cyber threat/security and social media protection technique

For the system procurement purpose, it is stated here that the vendor/service provider is expected to have the following qualification.

- The vendor/service provider must provide face-to-face training/online training/support in a group to operate the system.
- The vendor/service provider must be registered to the company registrar office in Nepal.
- The vendor/service provider company must be ISO certified.






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2. Establishment of Educational AVR System/Smart-Board – 1 Set

Those school without IT Lab need to establish the Lab as per the notice dated 2079-08-18 regarding the execution of Presidential Educational Improvement Program while the school having IT Lab perform improvement with establishment of AVR System equivalent or with higher features stated below:

LED Panel	Size	75" or Higher
	LED Panel Brand	BRANDED
	Panel type	DLED backlight, antiglare
	Resolution	3840(H)2160 (V) UHD
	Brightness (typ)/(min)	400 cd/m ² (typ.)
	Contrast(typ)	3000:1 (typ.)
	Response Time	8ms (typ.)
	Pixel Pitch	0.429(H) mm x 0.429(V) mm
	Visual angle	178 (H) / 178 (V)
	Life(typ)	50,000 hrs (min.)
	Colour saturation(x% NTSC)	0.65
	Display	4K Ultra HD display, support full channel 4K UI display
	Display Area	1649.66(H)mmx927.94(V)mm
	Color	10bit 1.07Billion
Drive Solutions	Android	Android 9 or Higher System
	RAM	4G Memory or Higher
	ROM	32 GB Storage Space or Higher
	OS	Android
	CPU	Quad Core A55 or Higher
OPS PC		I7, 8 th Gen or above
		Windows Pre-install/ windows 7 or above
		Intel Integrated Graphic
		256G,SSD
I/O Port	Android / PC	
	MINI-AV, PC AUDIO, VGA, TV-USB2.0, HDMI PORT*2, TF Card Slot for Android, RJ-45,ALL -USB*3,TOUCH USB,USB-PC	



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Camera	Built in 13 MP Camera	
Microphone	0~8m with 6 path voice picker	
Front side Key	Computer power supply, TV power supply, signal source, menu, volume +, volume -, energy saving, home page	
USB Support file format	Picture: JPEG、BMP、PNG .jpg\bmp\png Video: MPEG1、MPEG2、MPEG4、H264、RM、RMVB、MOV、MJPEG、VC1、DivX、FLV .avi\mpg\dat\vob\div\mov\mkv\rm\rmvb\mp4\mjpegl\ts\trp\wmv\asf.flv Audio: WMA、MP3、M4A (AAC) wma\mp3\m4a	
Video Feature	Display mode	Normal, Soft, Users, Dynamic
	3D digital comb filter, 3D image noise reduction, 3D motion adaptive comb filter, etc	
Manual Language	OSD Language	Multilanguage Optional
Support System	Support Windows 7/ Windows XP/ Windows 2000 / Linux UNIX / Windows 8.1(X86) Remark: OEM exports, default: no OS system when the goods are dispatched, Shall be installed by the customer	
Touch Product Name	IR Multi-touch Frame(20 points or higher)	
Touchscreen input	Opaque objects (e.g. finger, pen, etc.)	
Other Features		
<ul style="list-style-type: none"> * True Multi-touch points, without drift and blind spot * Supported true Multi-touch points number: 20 points * Intelligent waking up function * Supported OS: Windows 8/7/Vista/XP, Linux, Android, Mac OS X, Android etc. * Supporting TUIO, Flash and any other customer protocols * Excellent fault tolerance and high reliability * With lock. 		
Functions	Support dual systems: fast switching between Android and windows systems, multiple signal source selection, Sleep timing, shutdown memory channel function, TV remote control function, F1-F12 function keys commonly used by computer keyboards, one-key child lock, U disk lock function, automatic identification of signal sources and switching channels, dual-stream decoding of 3D content, one-click energy saving	
	Sliding lockable design for protecting interfaces and buttons	
	System Stability	No drift, no change with the environment
	Min Touch Diameter	5 mm
	Touch Accuracy	± 2mm on more than 95% touch area
Optical	Luminousness	Default Ordinary tempered glass(AG / AR glass Optional); 100% without glass,90% with toughened glass, 92% with AR glass,
Structure	Net weight 65KG or Higher, Gross weight(Carton) 85KG or Higher	



Accessory	Remote controller * 1; Power line (1.8m) * 1; Touch pen * 1; Wall mount*1;Certificate * 1; Warranty card * 1	
Digital Content Storage System (DCS)	Network Interface	1 adaptive 10/100Mbps WAN port
	Peripheral Interface	USB2.0 external storage device expansion port (card reader, mobile hard disk, U disk, etc. Other external storage devices)
	Hard Disk Interface	HD /SSD
	CPU Frequency	580 MHZ or Higher
	Memory	DDR1 64MB or Higher , Flash memory: 16MB
	Storage	HDD Genuine 2TB or Higher / SSD 1
	Features	<ul style="list-style-type: none"> • Support Internet and shared disk access switch management, • support/WPA2-PSK/mandatory AES and other encryption security mechanisms • Support personal private cloud remote storage • Support remote monitoring and management • Support disk system: NTFS/FAT32/EXT4 • Wireless network standard: IEEE 802.11b/g/n • Network protocol: CSMA/CA, CSMA/CD, TCP/IP, DHCP, ICMP, NAT, PPPoE • Maximum transfer rate: 300Mbps or Higher • One external antenna: detachable • One internal antenna: not detachable • Number of Antennas: 2 or higher • Storage Unit : Extensible
Applications	Writing software, Support Digital Library System	
Certification and Warranty	ISO 9001 Certified, 1 Year Warranty	

3. Provision of All in One Computer – 1Set

The specification equivalent to or with higher feature is recommended:

Processor	min.11th generation and above Intel Core i5(4C / 8T, 2.5 / 4.5GHz, 8MB)
Brand	Branded, ISO 9001 certified
Chipset	Intel SoC Platform
Graphics	Integrated Intel Iris Xe Graphics
LED screen	23.8" FHD (1920x1080) IPS 250nits Anti-glare
Storage	SSD 256G or Higher
Memory	8GB or higher
Audio	Realtek ALC233, Azalia Codec support 5.1 channel output ,2 Jacks, MIC in/ Line out
WLAN+Bluetooth	11ax, 2x2 + BT5.0
Speaker	3Wx2
Camera	HD 720p
WIFI	M.2 WIFI 802.11b/g/n & ac



Keyboard	USB K/B
Mouse	USB Mouse
Power management	AC90~240V, DC 12V8A~10A@ 96~120W
Minimum Rear Port	2x USB 2.0, 2x USB 3.2 Gen 2, 1x HDMI 1.4
	1x Ethernet (RJ-45), 1x power connector
OS	Microsoft window 10 Professional 64bit or higher
Application Software	Supports MIS software
Weight	Net weight: 8 Kg or higher Gross weight: 12KG (full set with keyboard and mouse and plug)
Base Warranty	1-year, Onsite (warranty must be verified from OEM Website)

4. Multifunction Printer – 1 Set

The specification equivalent or with higher feature is recommended:

Copy		
Copy Type	Monochrome laser	
Copy Speed	22ppm(A4)/23PPM Letter or higher	
Copy /Print Resolution	1200*1200 dpi or higher	
First copy time (FCOT)	Less than 10 secs. (A4)	
Paper Source capacity	150-sheet (cassette)	
Supported Paper Weight	60 to163g/m2 (cassette)	
Paper output	100 sheets (face down)	
Zoom	25%-400%	
Copy size	A4/LTR	
Copy Features	2 on1, ID Card Copy, Receipt Copy	
Processor	600 MHZ or higher	
Print Type	Monochrome laser	
Print speed	Up to 22 ppm (A4) or higher	
First print out time	7.8 sec (A4)(less then)	
Print Memory	128 MB or higher	
Connectivity	High speed USB 2.0 Net: IEEE 802.3 10/100 base-TX Wi-fi: IEEE 802.11b/g/n: Wi-Fi hotspot	
Scan type	Contact Image Sensing	
Color Depth	24 bit	
Document Size	Platen	Up to A4
Output File Format	Windows	Hi Compression PDF, Searchable PDF, PDF, JPEG, TIFF, BMP
	MAC	PDF, JPEG, TIFF, BMP, PNG
Output Function	Scan to Email, PC FTP IOS, Android	
Pull scan	YES, USB,	
Standard Interface	USB 2.0 Hi Speed	



USB function	Print, Scan
Compatible operating system	Windows 8 (32 / 64 bit) Windows 7 (32/ 64 bit) Windows Vista (32/64b Bit) Windows XP (32/64 bit) Windows 2000, Mac OS X 10.4 - 10.8 Linux*3
General Specifications	
LCD Display	Yes
Maximum Monthly Duty Cycle	20000 pages

5. Trolley Stand with Locking – 1 Set

- High quality foldable and adjustable trolley stand is recommended.
- Holding Capacity up to 150 kg.

6. Networking and Electrical Wiring

As per the requirement specified by the school.

(Note: All Item Should be compulsorily bought for the establishment of ICT Lab/ Upgradation and management of LMS with the digital library under the President Educational Improvement Program)





