Attachment 2. Specifications for Infrastructure

1. Overall

1. NIC
   1) NIC Overall

No	Classification	Specification	Unit	Q'ty	Remark
	e-Portal Hardware	H/W and S/W	SET	1	
1	Innovation Center Operation Office	H/W and S/W	SET	1	
		Interior(91 ㎡)	SET	1	

   2) e-Portal Hardware

   Refer to the Appendix 3.

   3) NIC Operation Office

   - H/W and S/W

No	Equipment	Specification	Unit	Q'ty
1	Operator Computer	• Processor: Intel core i5-2400 processor (3.10 GHZ,6MB) and above • Graphics: GDDR3 1GB and above • Memory: 6GB(DDR3 1333MHZ/4GB+2GB) • HDD: 1TB(7200RPM S-ATA2) • Monitor: 22" LCD Monitor • O/S: Windows 7 Home Premium (64-bit) • Keyboard: Spanish and English • Mouse: USB Type • Including Anti-Virus Program	Set	13
2	Digital Copier	• Multi Function Copier Printing • Print Speed (Black): Up to 25 ppm	Set	1

		• Print Speed (Color): Up to 25 ppm		
		• Print Resolution (dpi): Up to 600 x 600 dpi		
		Copy		
		• Copy Speed (Black): Up to 25 ppm		
		• Copy Speed (Color): Up to 25 ppm		
		• Copy Resolution: 600 x 600 dpi		
		•		
		Scan		
		• Method: Color CCD		
		• Scan Speed: 6 ppm (Color/Mono-chrome)		
		• Resolution (Optical): 600 x 600 dpi		
		• Resolution (Enhanced): 4,800 x 4,800 dpi		
		Fax		
		• Compatibility: ITU-T G3		
		General		
		• Interface: USB 2.0, Ethernet 10/100/1000 Base TX		
		• Memory: 1GB		
		Including ADF		
3	Multi Function Color Printer	Color Print, Copy, Scan, Fax Printing • Print Speed (Black): 21ppm • Print Speed (Color): 21ppm • Print Resolution (dpi): 1200 • Paper Input Capacity (Standard): 250 sheets • Paper: 3.86" x 5.83" to 8.5" x 14" Copy • Copy Speed (Black): 21 • Copy Speed (Color): 21	Set	1

		• Copy Resolution: Up to 1200 x 1200 dpi ☐ Scan • Method: Color Flatbed Scanner • Resolution (Optical): Up to 600 x 600 dpi • Scan to: USB / SMB / FTP / Network / Email Fax • Modem Speed (kbps): 33.6 • Compatibility: ITU-T G3 • Fax Memory: 4MB General • Interface: USB 2.0, Ethernet 10/100 Base TX • Memory: 256MB		
4	UPS for PC	• Output Capacity: 450Watts / 750 VA • Max Configurable Power: 450 Watts / 750 VA • Input /Output Voltage: 120V, 50/60Hz ± 3Hz • Battery Type: sealed Lead-Acid battery • Typical recharge time: 16hour • Backup Time at Half Load: 12minute(225 Watts) • Comply with electricity standards of Colombia	Set	13
5	Video Projector & Screen	Projector • Native Resolution: XGA (1024x768) • Brightness (ANSI-Lumens): 4000ANSI • Contrast Ratio (FIFO): 2000:1 and above • Lamp life (hours): 2500 and above Portable Screen • Size: 2400 x 1800 • Material: Matt White	Set	1

No	Equipment	Specification	Unit	Q'ty
6	DAS/NAS Storage for RIC content backup	• 2.0GHz CPU, 512MB DDR2 Memory, 16MB Flash memory • HDD: 8TB(4 X 2TB, 3.5" SATA) • Tray: 4 X Hot Swappable Tray • Network: 2 Gigabit Ethernet • USB: 4 X USB 2.0 • Form Factor: Tower	Set	1
7	Consumables & Stationery	• Toner for Multifunction Color Printer (Black): 5EA • Toner for Multifunction Color Printer (Yellow): 5EA • Toner for Multifunction Color Printer (Magenta): 5EA • Toner for Multifunction Color Printer (Cyan): 5EA • Toner for Digital Copier (Black): 3EA • Toner for Digital Copier (Yellow): 3EA • Toner for Digital Copier (Magenta): 3EA • Toner for Digital Copier (Cyan): 3EA	Set	1
8	Software	MS-Office 2010, Home and Business	Set	13
9	Workgroup Switch	• Backplane: 32Gbps or more • 1G Fiber Ethernet: 4ports or more (Including SFP) • 10/100/1000 Mbps Ethernet: 24ports or more	Set	1
10	Power & Network Cabling	• Network Cabling(15 port): Cat 5 or 5e and miscellaneous materials • Power Cabling(91 ㎡): HIV 600 heat-resistant Cable and power plugs (Colombian standard Type) • Comply with electricity/communication standards/regulations	Port	15

- Interior(91㎡)

No	Equipment	Specification	Unit	Q'ty

No	Classification	Specification	Unit	Q'ty
1	Furniture	• Office Desk: 13EA • Partition: 91 ㎡ • Chair: 21EA • Printer Desk: 4EA • Office Cabinet: 13EA • Conference table(8 person): 1EA • File Cabinet: 13EA * Reference only and minimum requirements	Set	1
2	Interior	• Wall, Roof, Window, etc * The Bidder shall propose a space plan.	Set	1

2. RIC
1) RIC Overall

No	Classification	Specification	Unit	Q'ty	Remark
1	Server and Storage System	Hard ware & Soft ware	SET	5	
2	RIC Operation Office	H/W and S/W	SET	5	
		Interior(49 ㎡)	SET	5	
3	Multimedia Studio	H/W and S/W	SET	5	
		Studio Soundproof Construction(113 ㎡)	SET	5	
4	Content Development and Research Office	H/W and S/W	SET	5	
		Interior(70 ㎡)	SET	5	
5	Multimedia Classroom (Central RIC)	H/W and S/W	SET	2	
		Interior(63 ㎡)	SET	2	

No	Equipment	Specification	Unit	Q'ty	
6	Multimedia Classroom (4 RIC)	H/W and S/W	SET	8	
		Interior(63 ㎡)	SET	8	
7	General Classroom (Central RIC)	H/W and S/W	SET	2	
		Interior(63 ㎡)	SET	2	
8	General Classroom (4 RIC)	H/W and S/W	SET	8	
		Interior(63 ㎡)	SET	8	
9	RIC Security System	RIC Security System	SET	5	

2) Server and Storage system

- H/W and S/W

No	Equipment	Specification	Unit	Q'ty
1	Test Server	• 2U Rack Type • 4 Core Intel Xeon 2.4GHz/10MB L3 Cache * 2EA • Memory: 8GB • HDD: 300GB 10K SAS * 2EA, RAID 1 • LAN: 1Gbps Fiber Ethernet Card * 2EA • ODD: DVD RW • Dual Power Supply • OS: Linux	Set	1
2	Digital Resource Management Server	• 2U Rack Type • 4 Core Intel Xeon 2.4GHz/10MB L3 Cache * 2EA • Memory: 8GB • HDD: 300GB 10K SAS * 2EA, RAID 1 • LAN: 1Gbps Fiber Ethernet Card * 2EA • ODD: DVD RW • Dual Power Supply • OS: Linux	Set	1

No	Equipment	Specification	Unit	Q'ty
3	DAS/NAS Storage	• Processor: Intel Xeon Quad-Core Processor X3480 processor 3.06GHz+ • Memory: 8192 MB DDR3 SDRAM • HDD Bays: 16 * 3.5"/2.5" SATA III or SAS 6Gb/s Disk • RAID Level: 0, 1, 5,6,10, 50,60 및 JBOD • Interface: SATA/SAS (x16) via backplane • Power: "Redundant power supply least 700W • NIC: Intel 10GbE X520-DA2 Dual port with SFP GBIC Module • HDD: 24TB (2,000GB 7.2K RPM SATA III Disk * 12EA) • High Availability Support (HA) • Access Guard: allows or denies specific IP or MAC addresses Including Intel 10GbE X520-DA2 Dual port with SFP GBIC Module	Set	1
4	Workgroup Switch	• Backplane: 32Gbps or more • 1G Fiber Ethernet: 4ports or more (Including SFP) • 10/100/1000 Mbps Ethernet: 48ports or more	Set	7
5	Rack	• 42U Rack & KVM Switch, PDU, Panel Monitor	Set	1

3) RIC Operation Office

- H/W and S/W

No	Equipment	Specification	Unit	Q'ty
1	Operator Computer	• Processor: core i5-2400 processor (3.10 GHZ, 6MB) and above • Graphics: GDDR3 1GB and above • Memory: 6GB(DDR3 1333MHZ/4GB +2GB)	Set	7

		• HDD: 1TB (7200RPM S-ATA2) • Monitor: 22" LCD Monitor • O/S: Windows 7 Home Premium (64-bit) • Keyboard: Spanish and English • Mouse: USB Type • Including Anti-Virus Program		
2	Digital Copier	• Multi Function Copier Printing • Print Speed (Black): Up to 25 ppm • Print Speed (Color): Up to 25 ppm • Print Resolution (dpi): Up to 600 x 600 dpi Copy • Copy Speed (Black): Up to 25 ppm • Copy Speed (Color): Up to 25 ppm • Copy Resolution: 600 x 600 dpi • Scan • Method: Color CCD • Scan Speed: 6 ppm(Color/Mono-chrome) • Resolution (Optical): 600 x 600 dpi • Resolution (Enhanced): 4,800 x 4,800 dpi Fax • Compatibility: ITU-T G3 General • Interface: USB 2.0, Ethernet 10/100/1000 Base TX • Memory: 1GB Including ADF	Set	1
3	Multi Function Color Printer	Color Print, Copy, Scan, Fax Printing	Set	1

		• Print Speed (Black): 21ppm • Print Speed (Color): 21ppm • Print Resolution (dpi): 1200 • Paper Input Capacity (Standard): 250 sheets • Paper: 3.86" x 5.83" to 8.5" x 14" Copy • Copy Speed (Black): 21 • Copy Speed (Color): 21 • Copy Resolution: Up to 1200 x 1200 dpi Scan • Method: Color Flatbed Scanner • Resolution (Optical): Up to 600 x 600 dpi • Scan to: USB / SMB / FTP / Network / Email Fax • Modem Speed (kbps): 33.6 • Compatibility: ITU-T G3 • Fax Memory: 4MB General • Interface: USB 2.0, Ethernet 10/100 Base TX • Memory: 256MB		
4	Consumables & Stationery	• Toner for Multifunction Color Printer (Black): 3EA • Toner for Multifunction Color Printer (Yellow): 3EA • Toner for Multifunction Color Printer (Magenta): 3EA • Toner for Multifunction Color Printer (Cyan): 3EA • Toner for Digital Copier (Black): 2EA • Toner for Digital Copier (Yellow): 2EA • Toner for Digital Copier (Magenta): 2EA	Set	1

No	Equipment	Specification	Unit	Q'ty
		Toner for Digital Copier (Cyan): 2EA		
5	UPS for PC	• Output Capacity: 450Watts / 750 VA • Max Configurable Power: 450 Watts / 750 VA • Input /Output Voltage: 120V, 50/60Hz ± 3Hz • Battery Type: sealed Lead-Acid battery • Typical recharge time: 16hour • Backup Time at Half Load: 12minute(225 Watts) • Comply with electricity standards of Colombia	Set	7
6	Video Projector & Screen	Projector • Native Resolution: XGA (1024x768) • Brightness (ANSI-Lumens): 4000ANSI • Contrast Ratio (FIFO): 2000:1 and above • Lamp life (hours): 2500 and above Portable Screen • Size: 2400 x 1800 • Material: Matt White	Set	1
7	Software	MS-Office 2010, Home and Business	Set	7
8	Power & Network Cabling	• Network Cabling (9 Port): Cat 5 or 5e and miscellaneous materials • Power Cabling (49 ㎡): HIV 600 heat-resistant Cable and power plugs of Colombian Type • Compliant with Colombian electricity standards	Set	1

- Interior(49㎡)

No	Equipment	Specification	Unit	Q'ty

No	Equipment	Specification	Unit	Q'ty
1	Furniture	• Office Desk: 7EA • Partition: 49 ㎡ • Chair: 15EA • Printer Desk: 1EA • Office Cabinet: 7 • Conference table(8person) 1EA • File Cabinet: 7EA * Reference only and minimum requirements	Set	1
2	Interior	• Wall, Roof, Window, etc • Air Conditioner * The Bidder shall propose a space plan.	Set	1

4) Multimedia Studio
- H/W and S/W

No	Equipment	Specification	Unit	Q'ty
1	HD Camera System	• HD Camera system • Sensor: 1/3 Type 3Cmos • Total pixels per sensor: 2.37 Mega pixels • Effective pixels per sensor: 2.07 Mega-pixels • Horizontal resolution: 1000 tv lines or more • Zoom ratio: 18X • Recording file format: MXF • Recording format: MPEG 2 LONG GOP • Recording frame rate: - 50Mbps: 1920 x 1080/50i, 25p; 1280x720/50p, 25p - 35Mbps: 1920 x 1080/50i, 25p; 1280x720/50p, 25p - 25Mbps: 1440 x 1080/50i, 25p • HD / SD-SDI OUTPUT: YES	Set	2

		• Time cord, Component Out function Including Battery Pack 2ea, Carrying case, Remote Controller, CF Card Reader, Rain Cover, Memory 32GB 2ea		
2	CCU for HD Camera System	• Camera Control Unit • Focus: Focus dial, Focus direction switch, Focus auto On / Off Key, Expanded focus key • Iris: Iris dial, Iris direction switch, Iris auto On / Off key • Zoom: Zoom lever, Zoom direction switch, Zoom Speed Switch • White Balance: WHT BAL key, Preset key • Gain: Gain key, Select Key • Shutter: Shutter Key • Camera control ch: 5ch	Set	1
3	W/L Microphone System for HD Camera	Transmitter • Frequency response: 40 Hz ~ 18 Hz • Audio input connector: 3-pole mini jack Receiver • Frequency response: 40 Hz ~ 18 Hz • Signal to noise ratio: 60dB or more *Proposed products shall have frequency range that is acceptable in Colombia.	Set	1
4	Boom Microphone System	• Frequency Range: 20Hz - 20kHz • Maximum SPL: 131dB SPL • Sensitivity: -36.0dB re 1 Volt/Pascal • Output: XLR Including Boom pole, Wind screen	Set	1
5	Tripod System	Tripod System for HD Camera with Prompter	Set	1

		Head		
		• Payload range: 2 to 25kg / 4 to 55 lbs		
		• Counterbalance: 16 steps, plus Boost Button		
		• Tilt range: +90 ~ -70		
		• For tripods with 100mm bowls		
		Tripod		
		• Load Capacity: >40 kg		
		• Weight: <2.6 kg		
		• Min. Height: 460 ㎜		
		• Max. Height: 1,550 ㎜		
		• Material: Carbon fiber		
		Spreader		
		• Load Capacity: >50 kg		
		• Weight: < 0.8 kg		
		Cover		
		• Weight: < 3.81 kg		
		• Material: Polyethylene		
		Including Pan Bar, Dolly		
		Tripod System for HD Camera only	Set	1
		Head		
		• Counter balance: 5 + 0		
		• Max. load: >4 kg		
		• Pan angle range: 360deg		
		• Tilt angle range: > +90˚ to -75˚		
		• Grade of drag: 3 and 0		
		• Tripod interface: 75 ㎜ bowl		
		Tripod		
		• Material: Dural aluminum		
		• Max. Height: >1,730 ㎜		
		• Min. Height: <570 ㎜		

		• Load Capacity: >20 kg Spreader • Load capacity: > 40 kg • Weight: < 0.6 kg Including Dolly, Carrying Bag		
6	Studio LED Line Monitor	• Screen Size: 42" • Resolution: 1920 x 1080p • Display Type: LED • Aspect Ratio: 16:9 Including Stand	Set	1
7	Studio Monitor Speaker	• Type: Bi-amp 2-way powered speaker • Frequency response: 55Hz - 24kHz • Power consumption: 140W	Set	2
8	Prompter	• Display size: 20." (508mm) • Brightness: 1000 Nits • Resolution: 1280*1024 • Contrast ratio: 1000:1 • Input signal: BNC(Composite),VGA,SDI • Reading Range: 7m(23ft) Including QStart Software, USB Shuttle Xpress Control	Set	1
9	Notebook for Prompter	• CPU: INTEL COREi5-1ge i5-560M (2.66GHz) • Graphic card: NVIDIA / GEFORCE 310M • Display: LED backlight / 13.3inch • Panel resolution: 1366x768 • HDD ; 320GBram: 2GB DDR3 • OS: window 7 professional • Including DVD recorder, 6cell, 1Gbps LAN, 802.11n wireless LAN, HDMI, usb2.0	Set	1
10	HD Switcher	Video	Set	1

	• Input - 8 simultaneous live video sources, in any combination of HD-SDI, HD Component, SD-SDI, SD Component, Y/C (BNC) or Composite connections and resolutions - Virtual: 8 independent Input • Output: - 3 x SDI (2 Program and AUX) - 3 x Analog configurable for Component or Y/C + Composite (2 Program and AUX) - HDMI output (Program) - Network output for live streaming (Program) • Recording: Multi-track, multi-format recording of up to 8 simultaneous channels - Native recording in up to 1080p with time code • Live Streaming: HD live streaming via Gigabit connection Audio • Inputs: 8 SDI Embedded - 8 AES3/EBU - 8 x 2 Balanced - XLR (Microphone/Line) Phantom Power Support • Outputs: 3 SDI Embedded 2 AES3/EBU 4 Balanced XLR 4 Balanced XLR (AUX) 1 Stereo 1/4" (phones) • Supported Formats: NTSC: 1080/30p, 1080/24p, 1080/60i, 720/60p, 720/30p, 720/24p, 480/60i Multi-Standard: NTSC-J; PAL 1080/25p, 1080/50i, 720/50p, 720/25p, 576/25i • Playback Media Formats: AVI, DV, DVCPro, DVCProHD, FLV, F4V, H.263,		

		H.264, MOV, MKV, MJPEG, MPEG (1, 2, all profiles, program or trans-port streams), MP4, WMV, WebM, PSD, PNG, TGA, BMP, JPEG, EXR, RAW, TIF, AIFF, MP3, WAV, (Including Apple ProRes) • Processing: - Video: 4:4:4:4, 32-bit Floating Point - Audio: 4 channels, 96 kHz, 32-bit Floating Point • Character Generator: Multi format (HD/SD, Analog support) • Monitoring: Selectable layouts for user interface and multi-view preview displays		
11	Digital Video Deck	• Professional VTR functionality with features beyond tape Connections • SDI Video Input: 4 x 10-bit SD/HD/3 Gb/s SDI switchable • SDI Video Output:4 x 10-bit SD/HD/3G Gb/s SDI switchable • SDI Audio Input:16 channels embedded in SD and HD • SDI Audio Output: 16 channels embedded in SD and HD • Codec Support: Uncompressed QuickTime, Apple ProRes 422 (HQ) QuickTime, Avid DNxHD QuickTime, Avid DNxHD MXF, 2048x1080p25 • Displays: Built-in LCD for video, audio and time code monitoring Including SSD 128GB 2EA	Set	2
12	2D/3D Non-Linear Editing System	WORKSTATION • MS Windows 7 Professional 64-bit OS • Intel Xeon E5620 2.40 12MB/1066 4C CPU-1 • 1x Standard Heat-sink Thermal Kit • NVIDIA Quadro 2000 1.0GB Graphics	Set	1

		• 16GB (4x4GB) DDR3-1333 ECC RAM • 1000GB SATA 7200 1st HDD • 1000GB SATA 7200 2nd HDD • 16X DVD+-RW Super Multi SATA 1st Drive • USB Standard Keyboard • 22 inch monitor 2ea STORAGE • Host Interface: Dual 4Gb Fiber Channels • Type: Single RAID Controller • CPU: Intel Xscale i80348@800Mhz • RAID level: 0, 1, 10, 3, 5, 6 , 30, 50, 60 , Single Disk and JBOD • Bay: Hotswap 8ea • HDD: Option(SATAII,SATA,ATA) • Cache: Standard 1G and up to 4G 240 pins DDR2-533 • Power: Redundant by Dual 460W Power modules • 2,000GB 7.2K RPM SATA III X 8EA • Module - Drive Tray X 8EA • 4Gbps PCIe FC Card • Embedded Web browser-based RAID manager • Including editing S/W		
13	LCD Multi-view Monitor	• Screen Size: 42" • Resolution: 1920 x 1080p • Display Type: LED • Aspect Ratio: 16:9 Including Stand	Set	1
14	PGM Monitor	• Size: 17inch • Resolution: 1366X768 • Contrast ratio: 900:1 • Input: 2 X HD/SD SDI, 1xDVI, Analog Component / Composite / S-video / RGB	Set	1

		• Output: 1 X HD/SD SDI through-out		
15	HDV VTR	• Recording format: HDV1080/60i, 1080/50i, 1080/24p, 1080/25p, 1080/30p • Playout format: HDV1080/60i, 1080/50i, 1080/24p, 1080/25p, 1080/30p. • Video input/output: BNC x1/BNC x1 • S-video input/output: Mini-DIN 4pin x 2 • Component video output: BNC x 3 • Digital uncompressed output: HDMI Connector x 1 • Audio input: RCA x2, Stereo / Audio output: RCA x2,stereo • LCD monitor: 2.7-inch type	Set	1
16	Sync Generator	• HD Sync: Tri-level • SD Sync: Color Black, 75% Color Bars • Accuracy: 3 ppm • User Controls: External Dipswitch	Set	1
17	Brue Ray Player	• Video Out: 1.0 V (p-p), 75 Ω, sync negative, RCA jack x 1 • Component Video Out: • (Y) 1.0 V (p-p), 75 Ω, sync negative, RCA jack x 1 • (Pb)/(Pr) 0.7 V (p-p), 75 Ω, RCA jack x 2 • HDMI out: 19 pin (Type A, HDMI™ Connector)	Set	1
18	HD-SDI Router	• Port: 8 Input / 8 Output • Signal: 10 Bit SD-SDI, HD-SDI, 3G-SDI • Video Rate: 270 Mb/s ~ 3 Gb/s • Connector: BNC Jack, 75 Ohms • Audio: Embedded, TV Standard 48KHz 24Bit Sampling	Set	1
19	Audio Distribution AMP	Input • Number of Input:1In (2 Channels L/R) • Impedance: 600 ohm or 20K ohm balanced □ Output • Number of Output: 6 Out (2 Channels	Set	1

		L/R)		
		• Loop Output: 1 Out (2 Channels L/R)		
		• Impedance: 600 ohm balanced Output		
20	Interactive Display Board	• Size: 82", 16:9 aspect ratio • Resolution: 1920×1080P, Full HD • Brightness: 450(cd/㎡) • Support multi touch gestures, Soft Key function • Recognition Speed: 125fps • Plug and Play(USB 2.0) Including cables and accessories, S/W	Set	1

21	Audio Mixer	• 16ch digital audio mixer
		• Chanel: 1~16 Microphones/Lines
		• CH Input 1 to 12: Microphones & Lines
		• CH Input 13 to 16: Lines
		• 1TR In [L, R]: 600Ω Lines
		• Stereo Out [L,R]
		  - Omni Out: 1 to 4
		• Monitor Out(L,R)
		  - 2TR out (L,R): 600Ω Lines
		  - 2TR IN Digital: RCA Pin Jack
		  - ADAT In: Optical
		• Digital Output
		  - 2TR Out Digital: RCA Pin Jack
		  - ADAT Out: Optical
			Set	1

22	Control Room Monitor Speaker	• Type: Bi-amp 2-way powered speaker • Frequency response: 55Hz - 24kHz • Power consumption: 140W	Set	2
23	Wired Microphone	• Pick-up pattern: cardioid • Frequency response: 80 – 15,000 Hz • Sensitivity (free field, no load, 1 kHz): 1.5 mV/Pa • Nominal impedance: 350 Ω • Min. terminating impedance: 1 kΩ Including Stand	Set	2

	Gooseneck Microphone	• Polar Pattern: Hyper-cardioid • Frequency response: 70 Hz - 18 kHz • Maximum Sound Level: 124 dB SPL • Connector: XLR-3 male • Equivalent Acoustic Noise: 39 dBA SPL Including Stand	Set	1
24	W/L Microphone	• Frequency response: 25~18000Hz Receiver • Antenna connector: 2x BNC • Audio output level (balanced): XLR Transmitter • RF output power typ. 30 mW • Power supply 2x AA batteries Microphone • Transducer; Microphone type: permanent polarized 130 dB(SPL) max. • AF sensitivity: 20 mV/Pa omni-directional • Sound pressure level (SPL): 130 dB(SPL) max. *Comply with frequency rate of Colombia	Set	2
25	Headphone	• System: Dynamic • Frequency range: 12Hz to 28kHz • Sensitivity: 125dB SPL/V • Input impedance: 32 Ohms • Max. input power: 30mW • Cable: 1m cable	Set	1
26	Network Switch	• Connectors: 16 10BASE-T/100BASE-X/1000BASE-T, 4 Gigabit SFP ports • Performance: 40 Gbps switching capacity, max. / 29.6 Mpps forwarding rate, max	Set	1

27	Intercom System	• Panel Microphone Input Type: Electret
		• Headset Microphone Input Type: Dynamic
		• Speaker Output
		  - Load Impedance: >= 4Ω
		  - Frequency Response: 600 - 10KHz ± 3dB
		
		Including Headset 3EA, Belt-pack 2EA
			Set	1

28	Back-up System	• LTO Backup system
		• Sustained Transfer Rate
		  - 100MB/s direct attached,
		  - up to 75 MB/s network
		• Hard Disk Drive
		  - 2000 GB X 2 – RAID0/1
		• Format Compatibility
		  - GNU or POSIX tar v1.20 or later, LTFS 2.0 Direct Attached File Systems Supported
		• Drive
		  - Native Capacity: 1500 GB
		  - Average Access Time: 52 Sec from BOT
		  - Rewind Time: 96 Sec from EOT
		  - Average Load Time: >19 Seconds
		  - MTBF: 250,000 Hours
		  - Uncorrected Error Rate: 1x1017
		
		• LTO 5 Media
		  - Archival Life — 30 years
		  - Durability — 5,000 load/unload cycles
		
		Including LTO5 1.5TB Tape 10ea, Cleaning tape 1ea, Rack mount Kit
			Set	1

29	On Air Lamp	• Lamp Type: Red LED Type • Tally Input: 10mA	Set	2
30	UPS	• Output Power Capacity: 10 kVA • Input - Voltage Range: 90~130AVC	Set	2

		- Frequency: 50/60Hz ± 5%
		- Max Input Current: 112A
		• Output
		  - Voltage Range: 110AVC± 1%
		  - Frequency: 50/60Hz ± 5%
		  - AVR Function: included
		• Battery Type Maintenance-free sealed
		  Lead-Acid battery
		• Typical recharge time: 90% capacity after
		  8 hours
		• Surge Protection and Filtering: Included
		• Backup Time: 30 minutes or less
		
		• Comply with electricity standards of
		  Colombia		

31	Chroma key Screen	• 150" Electronic Screen • 3000 X 4000 (mm) • Color: Blue	Set	1
32	Console Desk	• Material: Wood and Steel • Number of Bay: 5 Bay • Base: Rack Type	Set	1
33	NLE Desk	• Material: Wood • desk for 2D/3D Editing System	Set	1

34	Power Distributer	• AC Voltage meter: Line input / output
		  (use of the voltage)
		• Channel: 8 Ch
		• Ch load: 10A or more
		• Total max load: 45A or more
		• Power: 55 watts or more
		
		• Comply with electricity standards of
		  Colombia
			Set	2

35	System Rack	• 19", 42U
		• Front Door: 5.0T Tempered Glass , Key
		  Locking
		• Rear Door: 1.2T Steel, Air Vent
		• Side Panel: SPC, Slide Latch Type
		• Mount Bar: Aluminum, 4EA(Slim Nut
		  Type)
		
		Including Power Extension (10 Socket or
		more), Caster
			Set	1

- Studio Soundproof Construction(113㎡)

No	Equipment	Specification	Unit	Q'ty
1	Soundproof Interior	• Soundproof system and doors, dustproof system, Furniture • Air conditioner 2 Set or more • Extinguishing System: Carbon Dioxide Extinguishing System or Halogen Compounds Extinguishing System * Reference only – The Bidder shall propose an optimized space plan. *Comply with electricity standards of Colombia	Set	1
2	Power Cabling and Installation	• Electric Power Cabling • Audio/Visual Signal Cabling • Equipment Installation * For Audio/Visual Signal Cabling, Cables and connectors from "Beldon" or "Gepco" are advised. * Comply with electricity standards of Colombia	Set	1
3	Studio Lighting	• Light Fly Duct: 5000L 4EA • Upper Horizon Light: 300W 9EA • Spot Light: 650W, 3EA • Back Spot Light: 2EA • Photo Optic Light(POL 4/220W): 10EA • Barn Door: 3EA • Light Hanger: 24EA • Safety Chain: 24EA • R/D Unit Panel & Control Board(12RD) • Pipe Grid * Reference only – The Bidder shall propose an optimized space plan. *Proposed lightings shall be low-heat emitting products. *Comply with electricity standards of	Set	1

		Colombia		

5) Content Development and Research Office

- H/W and S/W

No	Equipment	Specification	Unit	Q'ty
1	Operator Computer	• Processor: Intel core i5-2400 processor (3.10 GHZ,6MB) and above • Graphics: GDDR3 1GB and above • Memory: 6GB(DDR3 1333MHZ/4GB +2GB) • HDD: 1TB (7200RPM S-ATA2) • Monitor: 22" LCD Monitor * 2EA • O/S: Windows 7 Home Premium(64-bit) • Keyboard: Spanish and English • Mouse: USB Type Including Anti-Virus Program	Set	10
2	Multi Function Color Printer	Color Print, Copy, Scan, Fax Printing • Print Speed (Black): 21ppm • Print Speed (Color): 21ppm • Print Resolution (dpi): 1200 • Paper Input Capacity (Standard): 250 sheets • Paper: 3.86" x 5.83" to 8.5" x 14" Copy • Copy Speed (Black): 21 • Copy Speed (Color): 21 • Copy Resolution: Up to 1200 x 1200 dpi □ Scan	Set	2

		• Method: Color Flatbed Scanner • Resolution (Optical): Up to 600 x 600 dpi • Scan to: USB / SMB / FTP / Network / Email Fax • Modem Speed (kbps): 33.6 • Compatibility: ITU-T G3 • Fax Memory: 4MB General • Interface: USB 2.0, Ethernet 10/100 Base TX • Memory: 256MB		
3	UPS for PC	• Output Capacity: 450Watts / 750 VA • Max Configurable Power: 450 Watts / 750 VA • Input /Output Voltage: 120V, 50/60Hz ± 3Hz • Battery Type: sealed Lead-Acid battery • Typical recharge time: 16hour • Backup Time at Half Load: 12minute(225 Watts) • Comply with electricity standards of Colombia	Set	10
4	Digital Copier	• Multi Function Copier Printing • Print Speed (Black): Up to 25 ppm • Print Speed (Color): Up to 25 ppm • Print Resolution (dpi): Up to 600 x 600 dpi Copy • Copy Speed (Black): Up to 25 ppm • Copy Speed (Color): Up to 25 ppm • Copy Resolution: 600 x 600 dpi •	Set	1

		Scan • Method: Color CCD • Scan Speed: 6 ppm(Color/Mono-chrome) • Resolution (Optical): 600 x 600 dpi • Resolution (Enhanced): 4,800 x 4,800 dpi Fax • Compatibility: ITU-T G3 General • Interface: USB 2.0, Ethernet 10/100/1000 Base TX • Memory: 1GB Including ADF		
5	Digital Camera	• Effective Pixel: Approx. 20.3 Mega-pixels • Total Pixel: Approx. 21.6 Mega-pixels • Image Sensor Type: CMOS • Main LCD Screen: AMOLED • Resolution: VGA (640X480) 614k dots • USB 2.0 (HI-SPEED) • Video Out: NTSC, PAL (user selectable), HDMI 1.4a: (1080i, 720P, 576P / 480P) • Storage media: SD / SDHC / SDXC • • Including Tripod, Rechargeable Battery, Bag, Lens(18~55mm Lens), 32GB Memory card, Compatible Microphone	Set	2
6	HD Camcorder	• Type: 1080p HD Switch Grip Camcorder • Lens: Optical Zoom: 20x, Digital Zoom: 40x • F Value: 1.8(W) ~ 3.9(T) • Focal Length 2.6mm ~ 52mm • No. of Pixels: 5.1M Pixel • Sensor Type: 1/4" (effec.1/6.3") • Display: 2.7" Wide touch • Recording Format: H.264 HP • Resolution: Full HD i (1920x1080/60i),	Set	2

		Vertical HD(1920x1080/30p), HD p (1280x720/60p) SD D1 (720x480/60P) • Video File Format: MP4 • Audio Recoding Format: AAC • Storage media: SD / SDHC / SDXC • • Including Tripod, Bag, 32GB Memory card		
7	Video Projector & Screen	Projector • Native Resolution: XGA (1024x768) • Brightness (ANSI-Lumens): 4000ANSI • Contrast Ratio (FIFO): 2000:1 and above • Lamp life (hours): 2500 and above Portable Screen • Size: 2400 x 1800 • Material: Matt White	Set	1
8	Consumables & Stationery	• Toner for Multifunction Color Printer (Black): 5EA • Toner for Multifunction Color Printer (Yellow): 5EA • Toner for Multifunction Color Printer (Magenta): 5EA • Toner for Multifunction Color Printer (Cyan): 5EA • Toner for Digital Copier (Black): 3EA • Toner for Digital Copier (Yellow): 3EA • Toner for Digital Copier (Magenta): 3EA Toner for Digital Copier (Cyan): 3EA	Set	1
9	CD/DVD Duplicator	• Display: 2x20 ASCⅡ back light LCD • Memory: 128MB • Internal HDD: 500GB • Reader: 18X DVD Rom • Writer: 24X DVD Recorder * 11 Disk • Writing Speed: DVD+R 24X / DVD-R 24X / CD-R 48X / DVD+RW 8X / DVD-RW 6X / CD-RW 32X Stand alone type	Set	1

10	CD/DVD Printer	• Supported Media: CDs, DVDs, Blu-ray Discs, and HD-DVDs • Disc Input: 100 • Printing Technology: Inkjet printer • Print Resolution: 4800 dpi x 1200dpi • Connectivity: Hi Speed USB Including Label Design S/W	Set	1
11	DAS /NAS Storage for RIC content backup	• 2.0GHz CPU, 512MB DDR2 Memory, 16MB Flash memory • HDD: 8TB(4 X 2TB, 3.5" SATA) • Tray: 4 X Hot Swappable Tray • Network: 2 Gigabit Ethernet • USB: 4 X USB 2.0 • Form Factor: Tower	Set	1
12	Software	MS-Office 2010, Office University 2010	Set	10
		Creative Suite 6 Design & Web Premium Student and Teacher Edition	Set	2
		Adobe Creative Suite 6 Production Premium Student and Teacher Edition	Set	2
		Creative Suite 6 Master Collection Student and Teacher Edition	Set	2
		Autodesk 3D Max Design 2013, Subscription (1 year)	Set	1
		Corel painter 12	Set	2
		CorelDRAW Graphics Suite X6	Set	2
		Sound Forge Pro 10	Set	2
13	Blank DVD	• DVD-R, 4.7GB 16X 50P, Printable	Set	4,000
14	Power & Network Cabling	• Network Cabling(14 Port): Cat 5 or 5e and miscellaneous materials • Power Cabling(70 ㎡): HIV 600 heat-resistant Cable and power plugs of Colombian Type	Set	1

No	Equipment	Specification	Unit	Q'ty
		• Comply with electricity standards of Colombia		

- Interior(70㎡)

No	Equipment	Specification	Unit	Q'ty
1	Furniture	• Office Desk: 10EA • Partition: 90 ㎡ • Chair: 18EA • Printer Desk: 2EA • Office Cabinet: 8 • Conference table(8person) 1EA • File Cabinet: 10EA * Reference only and minimum requirements	Set	1
2	Interior	• Wall, Roof, Window, etc • Air Conditioner *The Bidder shall propose a space plan.	Set	1

6) Multimedia Classroom

- H/W and S/W

No	Equipment	Specification	Unit	Q'ty
	A. Electronic Desk Board			
1	PC for Trainer	• Processor: Intel core i5-2400 processor(3.10 GHZ,6MB) and above • Graphics: GDDR3 1GB and above • Memory: 6GB(DDR3 1333MHZ/4GB +2GB) • HDD: 1TB (7200RPM S-ATA2) • Monitor: 22" LCD Monitor • O/S: Windows 7 Home Premium(64-bit)	Set	1

2		• Keyboard: Spanish and English • Mouse: USB Type Including Anti-Virus Program & HD Encoder		
2	PC for Trainee	• Processor: Intel core i5-2400 processor (3.10 GHZ,6MB) and above • Graphics: GDDR3 1GB and above • Memory: 6GB(DDR3 1333MHZ/4GB +2GB) • HDD: 1TB (7200RPM S-ATA2) • Monitor: 22" LCD Monitor • O/S: Windows 7 Home Premium (64-bit) • Keyboard: Spanish and English • Mouse: USB Type Including Anti-Virus Program	Set	25 (Central RIC 30Set)
3	Multi Function Color Printer	Color Print, Copy, Scan, Fax Printing • Print Speed (Black): 21ppm • Print Speed (Color): 21ppm • Print Resolution (dpi): 1200 • Paper Input Capacity (Standard): 250 sheets • Paper: 3.86" x 5.83" to 8.5" x 14" Copy • Copy Speed (Black): 21 • Copy Speed (Color): 21 • Copy Resolution: Up to 1200 x 1200 dpi Scan • Method: Color Flatbed Scanner • Resolution (Optical): Up to 600 x 600 dpi • Scan to: USB / SMB / FTP / Network / Email Fax • Modem Speed (kbps): 33.6 • Compatibility: ITU-T G3	Set	2

		• Fax Memory: 4MB General • Interface: USB 2.0, Ethernet 10/100 Base TX • Memory: 256MB		
4	Software	MS-Office 2010, Office University 2010	Set	26 (Central RIC: 31Set)
5	e-Podium	• Type: Stand Type • Top unit equipped with a 21.5" writable LCD Tablet monitor. • PC and monitor locking system to prevent theft. • Built-in board cable and microphone Including Gooseneck Microphone, content authoring S/W * This product shall come form the same manufacturer of the Interactive Display Board.	Set	1
6	Interactive Display Board	• Size: 70", 16:9 aspect ratio • Resolution: 1920×1080P, Full HD • Brightness: 450(cd/㎡) • Support multi-touch gestures, soft key function • Recognition Speed: 125fps • Plug and Play(USB 2.0) Including cables and accessories, S/W	Set	1
	B. Audio System			
1	Wireless Microphone	Handheld Transmitter • Audio Input Level:　+2 dBV maximum at -10dB position • Gain Adjustment Range: 10dB • RF Transmitter Output: 30mW Maximum • Battery Life　8 hours (alkaline) • Including Microphone	Set	2

		Receiver: • XLR connector (into 600 Ω load): −13 dBV • XLR Out: Impedence balanced Including external power supply *Comply with frequency rate of Colombia		
2	Wired Microphone	• Type: Dynamic • Frequency Response: 50 to 15,000 Hz • Polar Pattern: Cardioid • Sensitivity: −54.5 dBV/Pa (1.85 mV)	Set	2
3	DSP Mixer	• Acoustical Echo Cancellation • Noise Cancellation • Built-in telephone interface and 10W power amplication Audio Performance • Frequency Response: 20Hz to 22KHz ±1dB • Dynamic Range: 100dB(non A-weighted) Matrix Mixing Parameters • 12 analog in/out • 18 expansion bus in/out • 8 assignable processing blocks in/out • 1 10W speaker amplication • 1 telco input/1 telco out Control • 10/100 Mbps Ethernet Network Port and PC Port • RS-232(DB-9 female) • USB 2.0 compatible Including Configuration and Admin Software	Set	1
4	Ceiling Speaker	• Frequency range (-10 dB): 80 Hz - 20 kHz • Power handling (pink noise): 20 W • Sensitivity: 86 dB, 1 W @ 1 m, 1/2 space • Nominal impedance: 8 Ω	Set	8
	C. Video System			

1	HD Matrix Switcher	• RGBHV+Stereo, 8in 8out • RS-232 Control Audio • Input Level(max): +14dBu, unbalanced • Input Impedence: 18KΩ • Output Level(max): +14dBu, unbalanced • Output Impedence: 50Ω • Connectors: 3T Wideband Video • Input Level(max): +/- 1.5V • Input Impedence: 75Ω • Frequency Response: 300MHz or more (+/- 3dB) • HV Sync Input Level(max): +/- 5V • HV Sync Output Level(max): +/- 5V • Connectors: HD-15	Set	1
2	Visual Presenter	• Capture area : 420 x 336(mm) • Focus : Auto / Manual • Camera Module: 42X Zoom, 1,300,000 pixels • Input: VGA(15pin D-Sub • Output: VGA(15pin D-Sub), DVI • Interface: RS-232C, USB2.0, Network, SD Memory	Set	1
3	Video Conference System	Video Standards and Protocols • H.264 / H.263++ / H.261 / H.239 / People+Content / H.263 & H.264 Video Error Concealment People Video Resolution • 720p, 30fps at 1 Mbps–2 Mbps (7002) • 4SIF (704 x 480)/4CIF (704 x 576) at 256 Kbps-2 Mbps • SIF (352 x 240), CIF (352 x 288) • QSIF (176 x 120), QCIF (176 x 144) Content Video Resolution • Up to 720p (7002) • Input: SXGA (1280x1024), XGA (1024 x 768),SVGA (800 x 600), VGA (640 x 480) • Output: XGA (1024x768), SVGA (800x600) Audio Standards and Protocols	Set	1

		• Stereo Surround • 22 kHz bandwidth • 14 kHz bandwidth, G.722.1 Other ITU-Supported Standards • H.221 communications • H.224/H.281 far-end camera control • H.323 Annex Q far-end camera control • H.225, H.245, H.241, H.331 • H.239 dual stream • H.231 in multipoint calls • H.243 chair control • H.460 NAT/firewall traversal • BONDING, Mode 1		

4	Camera	• PTZ Camera
		• Image device: 1/3 type (6mm), CMOS
		• Video signal: 1080i/59.94, 1080i/40.
		  1080p/29.97, 1080p25,
		  720p/59.94,720p/50/720p/29.97,720p/25ntsc/
		  pal
		• Lens: 10x optical/ 40x digital f=3.4-33.9, f1.8-
		  f2.1
		• Video out: component: D-Sub 15 pin/ HD-
		  SDI, BNC Type / RCA Phone Jack
			Set	2

5	Motion Detection Camera System	Sensor Camera • CCD Fix Type Camera • 1/3" High Resolution CCD • Total Pixels: 811(H)x506(V) • Effective Pixels: 768(H)x494(V) • Resolution: More than 630TV Lines Motion Tracking Controller • E6600CPU, 1GB SDRAM, 120GB HDD, Composite Video Input, Rack Type • Motion tracking Control H/W • RS-232C, USB interface Including Cam Motion S/W	Set	1
6	Monitor	• Screen Size: 42" • Resolution: 1920 x 1080p • Display Type: LED • 4 HDMI port	Set	2

		Including Ceiling Type Bracket		
	D. Classroom Control			
1	Controller	• 7 Configurable RS-232 / RS-422 / RS-485 Serial ports • 8 Relays • 8 IR / Serial ports • 8 Digital I/O ports • 2 Communication Networks: AxLink and Ethernet (TCP/IP) • 404 MIPS processor speed • 64 MB RAM or 256 MB RAM • 2 GB CompactFlash • 1 MB Non-Volatile Memory	Set	1
2	Lecture Touch Control Panel	• Compact 4.3" size • 16x9 WQVGA color display • Screen resolution (HV): 480 x 272 pixels • Available in a high-gloss and textured matte combination finish in your choice of black or white • Power over Ethernet (PoE) • 128 MB Standard memory / 256 MB Flash memory • 1 capacitive-touch external button	Set	1
3	Wireless Touch Panel	• Retina display • 9.7-inch (diagonal) LED-backlit glossy widescreen Multi-Touch display with IPS technology • 30-pin dock connector port • 3.5-mm stereo headphone minijack • Built-in speaker • Microphone	Set	1
4	iPad License	• Administrators shall be able to control and manage the equipment through iPad.	Set	1
5	Program Fee	• Audio/Visual equipment on/off control • Camera Pan/Tilt/Zoom control • Signal input/output control through HD Matrix Switcher and DSP Mixer	Set	1
6	Classroom Management S/W	• 1 Teacher and 25 Student License (Central RIC 30 Student License)	Set	1

		Recovery management function • System recovery/Existing status store • Reserved recovery set-up • Recovery install/delete PC management function • Screen lock/unlock • Internet lock/unlock • Registry lock/unlock • Task management lock/unlock • Program execution lock/unlock Instruction tool • Sending message • Sending notice message • Remote execution • Attendance check/Attendance data print • Client monitoring		
	E. Miscellaneous	•		
1	UPS	• Output Power Capacity: 10 kVA • Input - Voltage Range: 90~130AVC - Frequency: 50/60Hz $\pm$ 5% - Max Input Current: 112A • Output - Voltage Range: 110AVC$\pm$ 1% - Frequency: 50/60Hz $\pm$ 5% - AVR Function: included • Battery Type Maintenance-free sealed Lead-Acid battery • Typical recharge time: 90% capacity after 8 hours • Surge Protection and Filtering: Included • Backup Time: 30 minutes or less • Comply with electricity standards of Colombia	Set	1
2	UPS for PC	• Output Capacity: 450Watts / 750 VA • Max Configurable Power: 450 Watts / 750 VA	Set	26 (Central

No	Equipment	Specification	Unit	Q'ty
		• Input /Output Voltage: 120V, 50/60Hz ± 3Hz • Battery Type: sealed Lead-Acid battery • Typical recharge time: 16hour • Backup Time at Half Load: 12minute(225 Watts) • Comply with electricity standards of Colombia		RIC 31Set)
3	Rack	• 19" 42U • Aluminum	Set	1
4	Power & Network Cabling	• Network Cabling (31 Port / 35 Ports for Central RIC): Cat 5 or 5e and miscellaneous materials • Power Cabling (63 ㎡): HIV 600 heat-resistant Cable and power plugs of Colombian Type • Comply with electricity standards of Colombia	Set	1

- Interior(63㎡)

No	Equipment	Specification	Unit	Q'ty
1	Furniture	• Office Desk for Trainees: 25EA(Central RIC 30EA) • Chair: 26EA(Central RIC 31EA) • Printer Desk: 2EA * Reference only and minimum requirements	Set	1
2	Interior	• Wall, Roof, Window, and etc (63 ㎡) • Air Conditioner * The Bidder shall propose a space plan.	Set	1

7) General Classroom
- H/W and S/W

No	Equipment	Specification	Unit	Q'ty

		A. Electronic Desk Board			
1	PC for Trainer	• Processor: Intel core i5-2400 processor(3.10 GHZ,6MB) and above • Graphics: GDDR3 1GB and above • Memory: 6GB(DDR3 1333MHZ/4GB +2GB) • HDD: 1TB (7200RPM S-ATA2) • Monitor: 22" LCD Monitor • O/S: Windows 7 Home Premium(64-bit) • Keyboard: Spanish and English • Mouse: USB Type • Including Anti-Virus Program & HD Encoder	Set	1
2	PC for Trainee	• Processor: Intel core i5-2400 processor (3.10 GHZ, 6MB) and above • Graphics: GDDR3 1GB and above • Memory: 6GB(DDR3 1333MHZ/4GB +2GB) • HDD: 1TB (7200RPM S-ATA2) • Monitor: 22" LCD Monitor • O/S: Windows 7 Home Premium (64-bit) • Keyboard: Spanish and English • Mouse: USB Type • • Including Anti-Virus Program	Set	13 (Central RIC 15Set)
3	Multi Function Color Printer	Color Print, Copy, Scan, Fax Printing • Print Speed (Black): 21ppm • Print Speed (Color): 21ppm • Print Resolution (dpi): 1200 • Paper Input Capacity (Standard): 250 sheets • Paper: 3.86" x 5.83" to 8.5" x 14" Copy • Copy Speed (Black): 21	Set	2

		• Copy Speed (Color): 21 • Copy Resolution: Up to 1200 x 1200 dpi Scan • Method: Color Flatbed Scanner • Resolution (Optical): Up to 600 x 600 dpi • Scan to: USB / SMB / FTP / Network / Email Fax • Modem Speed (kbps): 33.6 • Compatibility: ITU-T G3 • Fax Memory: 4MB General • Interface: USB 2.0, Ethernet 10/100 Base TX • Memory: 256MB		
4	Software	MS-Office 2010, Office University 2010	Set	14 (Central RIC: 16Set)
5	e-Podium	• Type: Stand Type • Top unit equipped with a 21.5" writable LCD Tablet monitor. • PC and monitor locking system to prevent theft. • Built-in board cable and microphone Including Gooseneck Microphone, content authoring S/W • This product shall come form the same manufacturer of the Interactive Display Board.	Set	1
6	Video Projector and Screen	Projector • Native Resolution: XGA (1024x768) • Brightness (ANSI-Lumens): 4000ANSI • Contrast Ratio (FIFO): 2000:1 and above • Lamp life (hours): 2500 and above	Set	1

		Screen • Size: 2400 x 1800 • Material: Matt White • Motorized		
	B. Audio System			
1	Wireless Microphone	Handheld Transmitter • Audio Input Level: +2 dBV maximum at -10dB position • Gain Adjustment Range: 10dB • RF Transmitter Output: 30mW Maximum • Battery Life 8 hours (alkaline) • Including Microphone Receiver: • XLR connector (into 600 Ω load): –13 dBV • XLR Out: Impedence balanced Including external power supply Comply with frequency rate of Colombia	Set	2
2	Wired Microphone	• Type: Dynamic • Frequency Response: 50 to 15,000 Hz • Polar Pattern: Cardioid • Sensitivity: –54.5 dBV/Pa (1.85 mV)	Set	2
3	DSP Mixer	• Acoustical Echo Cancellation • Noise Cancellation • Built-in telephone interface and 10W power amplication Audio Performance • Frequency Response: 20Hz to 22KHz ±1dB • Dynamic Range: 100dB(non A-weighted) Matrix Mixing Parameters • 12 analog in/out • 18 expansion bus in/out • 8 assignable processing blocks in/out • 1 10W speaker amplication	Set	1

		• 1 telco input/1 telco out		
		Control • 10/100 Mbps Ethernet Network Port and PC Port • RS-232(DB-9 female) • USB 2.0 compatible Including Configuration and Admin Software		
4	Ceiling Speaker	• Frequency range (-10 dB): 80 Hz - 20 kHz • Power handling (pink noise): 20 W • Sensitivity: 86 dB, 1 W @ 1 m, 1/2 space • Nominal impedance: 8 Ω	Set	8
	C. Video System			
1	HD Matrix Switcher	• RGBHV+Stereo, 8in 8out • RS-232 Control Audio • Input Level(max): +14dBu, unbalanced • Input Impedence: 18KΩ • Output Level(max): +14dBu, unbalanced • Output Impedence: 50Ω • Connectors: 3T Wideband Video • Input Level(max): +/- 1.5V • Input Impedence: 75Ω • Frequency Response: 300MHz or better(+/- 3dB) • HV Sync Input Level(max): +/- 5V • HV Sync Output Level(max): +/- 5V • Connectors: HD-15	Set	1
2	Visual Presenter	• Capture area : 420 x 336(mm) • Focus : Auto / Manual • Camera Module: 42X Zoom, 1,300,000 pixels • Input: VGA(15pin D-Sub • Output: VGA(15pin D-Sub), DVI • Interface: RS-232C, USB2.0, Network, SD Memory	Set	1
	D. Classroom Control			

1	Controller	• 7 Configurable RS-232 / RS-422 / RS-485 Serial ports • 8 Relays • 8 IR / Serial ports • 8 Digital I/O ports • 2 Communication Networks: AxLink and Ethernet (TCP/IP) • 404 MIPS processor speed • 64 MB RAM or 256 MB RAM • 2 GB CompactFlash • 1 MB Non-Volatile Memory	Set	1
2	Lecture Touch Control Panel	• Compact 4.3" size • 16x9 WQVGA color display • Screen resolution (HV): 480 x 272 pixels • Available in a high-gloss and textured matte combination finish in your choice of black or white • Power over Ethernet (PoE) • 128 MB Standard memory / 256 MB Flash memory • 1 capacitive-touch external button	Set	1
3	Wireless Touch Panel	• Retina display • 9.7-inch (diagonal) LED-backlit glossy widescreen Multi-Touch display with IPS technology • 30-pin dock connector port • 3.5-mm stereo headphone mini jack • Built-in speaker • Microphone	Set	1
4	iPad License	• Administrators shall be able to control and manage the equipment through iPad.	Set	1
5	Program Fee	• Audio/Visual equipment on/off control • Camera Pan/Tilt/Zoom control • Signal input/output control through HD Matrix Switcher and DSP Mixer	Set	1
6	Classroom Management S/W	• 1 Teacher and 13 Student License (Central RIC 15 Student License) Recovery management function • System recovery/Existing status store • Reserved recovery set-up • Recovery install/delete	Set	1

		PC management function • Screen lock/unlock • Internet lock/unlock • Registry lock/unlock • Task management lock/unlock • Program execution lock/unlock Instruction tool • Sending message • Sending notice message • Remote execution • Attendance check/Attendance data print • Client monitoring		
	E. Miscellaneous			

1	UPS	• Output Power Capacity: 10 kVA
		• Input
		  - Voltage Range: 90~130AVC
		  - Frequency: 50/60Hz ± 5%
		  - Max Input Current: 112A
		• Output
		  - Voltage Range: 110AVC± 1%
		  - Frequency: 50/60Hz ± 5%
		  - AVR Function: included
		• Battery Type Maintenance-free sealed Lead-Acid battery
		• Typical recharge time: 90% capacity after 8 hours
		• Surge Protection and Filtering: Included
		• Backup Time: 30 minutes or less
		
		• Comply with electricity standards of Colombia
			Set	1

2	UPS for PC	• Output Capacity: 450Watts / 750 VA • Max Configurable Power: 450 Watts / 750 VA • Input /Output Voltage: 120V, 50/60Hz ± 3Hz • Battery Type: sealed Lead-Acid battery • Typical recharge time: 16hour	Set	14 (Central RIC 16Set)

No	Equipment	Specification	Unit	Q'ty
		• Backup Time at Half Load: 12minute(225 Watts) • Comply with electricity standards of Colombia		
3	Rack	• 19" 42U • Aluminum	Set	1
4	Power & Network Cabling	• Network Cabling(19 Port): Cat 5 or 5e and miscellaneous materials • Power Cabling(63 ㎡): HIV 600 heat-resistant Cable and power plugs of Colombian Type • Comply with electricity standards of Colombia	Set	1

- Interior(63㎡)

No	Equipment	Specification	Unit	Q'ty
1	Furniture	• Office Desk for Tranee: 13EA(Central RIC 15EA) • Chair: 26EA(Central RIC 31EA) • Printer Desk: 2EA * Reference only and minimum requirements	Set	1
2	Interior	• Wall, Roof, Window, etc(63 ㎡) • Air Conditioner * The Bidder shall propose a space plan.	Set	1

8) RIC Security System
- H/D and S/W

No	Equipment	Specification	Unit	Q'ty
1	Camera	• Image Sensor: Diagonal 6mm(1/3") CCD • Pixels: 410,000 Pixels • Horizontal Resolution: 560TV Line(Color), 700TV Line(B/W)	Set	10

		• Video Out: VBS: 1.0p_p, Composite • S/N Ration: 52dB • Minimum Illumination: 0.00004Lux @ F1.2 • OSD: Spanish		
2	Motion Detection Sensor	Motion Detection Sensor (8 Set) • Sensing Method: Infrared • Detection Range: 12m X 1m • Mount Type: Ceiling Type • Alarm: NC/NO Door Sensor(10Set) • Sensing Distance: 25~55mm • Installation Location: In the Door or Window • Materials: Cover(ABS), Magnet * Required number and kind of equipment may vary depending on the actual space of RIC.	Set	1

3	DVR	• Video Input: Composite 16CH
		• Video Output
		  - Composite; 5CH
		  - VGA: 800X600, 1024X768, 1280X1024
		  - HDMI: 1080P(1920X1080)
		• Audio: 16CH In/1CH Out
		• Recoding
		  - Compression: MPEG4/G.723 ADPCM
		  - Resolution: CIF, Half D1, Full D1
		  - Max. Recoding Speed: CIF(480ips), Half D1(480ips), Full D1(480ips)
		• Searching: Day/Time Search, Event Search, Data/Time Search, Motion Detection Search
		• Alarm in/out: 16CH / 4CH
		• HDD: 1TB
		• Network
		  - Interface: 10/100/1000Mbps * 2Port
			Set	1

No	Equipment	Specification	Unit	Q'ty
		- Protocol: ADSL, DHCP, DNS, NTP - CMS and Web Viewer Function • Control: RS-485, PTZ Control, RS-232C		
4	UPS	• Output Power Capacity: 5 KVA • Input - Voltage Range: 100 ~ 280V - Frequency: 50/60Hz ± 5% • Output - Voltage Range: 120V ± 1% - Frequency: 50/60Hz ± 3Hz • Battery Type Maintenance-free sealed Lead-Acid battery • Typical recharge time: 2.5 hours • Surge Protection and Filtering: Included • Backup Time: 18 minutes(at 1,750Watts) or more • Comply with electricity standards of Colombia	Set	1
5	Rack	• 19", 22U • Aluminum	Set	1

3. Lab School
 -H/W and S/W

No	Equipment	Specification	Unit	Q'ty
1	F/W	• Anti-Virus • Child Protection • 1Year License for Server	Set	50
2	Network Switch	• Ports: 22 autosensing 10/100/1000 ports • Mounting: EIA-standard 19" Rack • Memory and processor: 8 MB flash, packet buffer size: 512 KB, 16 MB SDRAM • Throughput: up to 35.7 million pps (64-byte packets) • Management features: Web browser Switching capacity: 48 Gbps	Set	50

3	Proxy Server	• OS: WIndows7 Professional 64 • Processor: Intel Xeon Quad-Core W3520(2.66GHz, 8MB cache, 1066Mhz Memory) * 1EA • Memory: 4GB DDR3 • HDD: 500GB 7200rpm SATA • Optical Drive: SATA Super Multi-DVD Writer • Graphic Memory: 512MB • Network: 10/100/1000Mbps • Keyboard and Mouse • Including 22" LCD Monitor	Set	50
4	Access Point (WiFi)	• 802.11a/b/g, 54Mbps • Dual Antenna • Authentication: Security Standards, WPA, WPA2 (802.11i) • Encryption: AES encryption (WPA2), TKIP (WPA), WPA TKIP	Set	300
5	Notebook	• OS: Windows7 Home Premium (64bit) • CPU: Intel Core i5 Processor 3210M, 2.60Ghz, 3MB or higher • Screen Size: 15.6" • Resolution: 1366 X 768 • Memory: 6GB DDR3 • HDD: 500GB • ODD: DVD +/- RW • Speakers: Stereo Speaker • Web Camera: 1.3 MP HD • Connectivity: 802.11 b/g/n, Gigabit Wired Ethernet LAN, Bluetooth • I/O Ports: HDMI, 4 USB Ports, Headphone/Microphone, 4in1 Multi Slot(SD/SDHC/SDXC/MMC) • Keyboard: 101 Key(Spanish or English) • Touch Pad Including AC Adapter, Optical USB	Set	1100

		Mouse, Anti-Virus S/W		
6	Software	• MS-Office 2010, Home and Student	Set	1100
7	Multi Function Printer	• Color Print, Copy, Scan Printing • Print Speed (Black): 18ppm • Print Speed (Color): 4ppm • Print Resolution (dpi): 2400 X 600dpi Copy • Copy Speed (Black): 18ppm • Copy Speed (Color): 4ppm Scan • Method: Color CIS • Resolution (Optical): 600 x 600 dpi • Scan to: USB / PC General • Interface: High-Speed USB 2.0 / 10/100 Base Tx / Wireless 802.11 b/g/n • Memory: 128MB	Set	100
8	Toner	• Toner for Multifunction Color Printer(Black): 300 • Toner for Multifunction Color Printer(Yellow): 300 • Toner for Multifunction Color Printer(Magenta): 300 • Toner for Multifunction Color Printer(Cyan): 300	Set	1
9	Projector and Portable Screen	Projector • Native Resolution: XGA(1024x768) • Brightness(ANSI-Lumens): 3200ANSI • Contrast Ratio(FIFO): 2000:1 and above • Lamp life(hours): 3000 and above	Set	100

		Portable Screen		
		• Size: 2400 x 1800		
		• Material: Matt White		
10	Portable Station	• Enough storage to accommodate 11 or more notebooks • Portable interface • Charging system • Security lock	Set	100
11	UPS	• Capacity: 3000VA • Output Voltage(on Battery): Simulated sine wave at 100V / 110V / 115V / 120V +/- 5% • Output Frequency: 50 or 60Hz +/-10% • Voltage Regulation(AVR) function • Input Voltage: 100V / 110V / 115V / 120V +/- 25% • Input Frequency: 50 or 60Hz +/-10% • Battery type: Sealed, maintenance-free lead acid batteries with 3-6 years typical lifetime • Back-up Time(a PC with 15" monitor): 95~105 mins • Protection: Automatic self-test, Discharge protection, Replace battery indicator	Set	50
12	Power Extension	• 6 Socket • 3M * Comply with electricity standards of Colombia	Set	200
13	Classroom Management S/W	• 2 Teacher License, 20 Student License Recovery management function • System recovery/Existing status store • Reserved recovery set-up • Recovery install/delete PC management function • Screen lock/unlock	Set	50

| | | Internet lock/unlock Registry lock/unlock Task management lock/unlock Program execution lock/unlock Instruction tool Sending message Sending notice message Remote execution Attendance check/Attendance data print Client monitoring | | |