

Attachment 2. Specifications for Infrastructure

1. Overall

1. NIC

1) NIC Overall

No	Classification	Specification	Unit	Q'ty	Remark
1	e-Portal Hardware	H/W and S/W	Set	1	
2	Innovation Center Operation Office	H/W and S/W	Set	1	
		Interior	Set	1	

2) e-Portal Hardware

Refer to the Attachment 3.

3) NIC Operation Office

- H/W and S/W

No	Equipment	Specification	Unit	Q'ty
1	Operator Computer	<ul style="list-style-type: none"> • Processor: Intel core i5-2400 processor (3.10 GHZ,6MB) and above • Graphics: 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	<ul style="list-style-type: none"> • Color Print, Copy, Scan, Fax Printing • Print Speed (Black): Up to 25 ppm 	Set	1

		<ul style="list-style-type: none"> • Print Speed (Color): Up to 25 ppm • Print Resolution (dpi): Up to 600 x 600 dpi <p>Copy</p> <ul style="list-style-type: none"> • Copy Speed (Black): Up to 25 cpm • Copy Speed (Color): Up to 25 cpm • Copy Resolution: 600 x 600 dpi • <p>Scan</p> <ul style="list-style-type: none"> • Method: Color CCD or CIS or Flatbed • Scan Speed: 20 ipm • Resolution (Optical): 600 x 600 dpi • Resolution (Enhanced): 4,800 x 4,800 dpi <p>Fax</p> <ul style="list-style-type: none"> • Compatibility: ITU-T G3 <p>General</p> <ul style="list-style-type: none"> • Interface: USB 2.0, Ethernet 10/100/1000 Base TX • Memory: 1GB <p>Including ADF</p>		
3	Multi Function Color Printer	<p>Color Print, Copy, Scan, Fax</p> <p>Printing</p> <ul style="list-style-type: none"> • Print Speed (Black): 21ppm • Print Speed (Color): 21ppm • Paper Input Capacity (Standard): 250 sheets <p>Copy</p> <ul style="list-style-type: none"> • Copy Speed (Black): 21cpm • Copy Speed (Color): 21cpm <p>Scan</p>	Set	1

		<ul style="list-style-type: none"> • Method: Color CCD or CIS or Flatbed • Scan Speed(Black): 11ipm or higher <p>Fax</p> <ul style="list-style-type: none"> • Modem Speed (kbps): 33.6 • Compatibility: ITU-T G3 • Fax Memory: 4MB or up to 250pages <p>General</p> <ul style="list-style-type: none"> • Interface: USB 2.0, Ethernet 10/100 Base TX • Memory: 256MB 		
4	UPS for PC	<ul style="list-style-type: none"> • 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: 11minute(225 Watts) <p>Comply with electricity standards of Colombia</p>	Set	13
5	Video Projector & Screen	<p>Projector</p> <ul style="list-style-type: none"> • Native Resolution: XGA (1024x768) • Brightness (ANSI-Lumens): 4000ANSI • Contrast Ratio (FIFO): 2000:1 and above • Lamp life (hours): 2500 and above <p>Portable Screen</p> <ul style="list-style-type: none"> • Size: 120”(2400 x 1800) • Material: Matt White 	Set	1
6	DAS/NAS Storage for RIC content backup	<ul style="list-style-type: none"> • 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 	Set	1

		<ul style="list-style-type: none"> • USB: 4 X USB 2.0 • Form Factor: Tower 		
7	Consumables & Stationery	<ul style="list-style-type: none"> • 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 , Home and Business	Set	13
9	Workgroup Switch	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • Network Cabling(15 port): Cat 5 or 5e and miscellaneous materials • Power Cabling: HIV 600 heat-resistant Cable and power plugs (Colombian standard Type) • Comply with electricity/communication standards/regulations 	Set	1

- Interior

No	Equipment	Specification	Unit	Q'ty
1	Furniture	<ul style="list-style-type: none"> • Office Desk: 13EA • Partition 1Set • Chair: 21EA • Printer Desk: 4EA • Office Cabinet: 13EA 	Set	1

		<ul style="list-style-type: none"> • Conference Table(8 person): 1EA • File Cabinet: 13EA <p>* Reference only and minimum requirements</p>		
2	Interior	<ul style="list-style-type: none"> • Wall, Roof, Window, etc <p>* The Bidder shall propose a space plan.</p>	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	Set	5	
3	Multimedia Studio	H/W and S/W	Set	5	
		Studio Soundproof Construction	Set	5	
4	Content Development and Research Office	H/W and S/W	Set	5	
		Interior	Set	5	
5	Multimedia Classroom	H/W and S/W	Set	10	
		Interior	Set	10	
6	General Classroom	H/W and S/W	Set	10	
		Interior	Set	10	
7	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	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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
3	DAS/NAS Storage	<ul style="list-style-type: none"> • 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) 	Set	1

		<ul style="list-style-type: none"> • High Availability Support (HA) Access Guard: allows or denies specific IP or MAC addresses 		
4	Workgroup Switch	<ul style="list-style-type: none"> • Backplane: 32Gbps or more • 1G Fiber Ethernet: 4ports or more (Including SFP) • 10/100/1000 Mbps Ethernet: 24ports or more 	Set	7
5	Rack	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • Processor: core i5-2400 processor (3.10 GHZ, 6MB) and above • Graphics: 1GB or 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 <p>including Anti-Virus Program</p>	Set	7
2	Digital Copier	<ul style="list-style-type: none"> • Color Print, Copy, Scan, Fax <p>Printing</p> <ul style="list-style-type: none"> • Print Speed (Black): Up to 25 ppm • Print Speed (Color): Up to 25 ppm • Print Resolution (dpi): Up to 600 x 600 dpi <p>Copy</p>	Set	1

		<ul style="list-style-type: none"> • Copy Speed (Black): Up to 25 cpm • Copy Speed (Color): Up to 25 cpm • Copy Resolution: 600 x 600 dpi • <p>Scan</p> <ul style="list-style-type: none"> • Method: Color CCD or CIS or Flatbed • Scan Speed: 20 ipm • Resolution (Optical): 600 x 600 dpi • Resolution (Enhanced): 4,800 x 4,800 dpi <p>Fax</p> <ul style="list-style-type: none"> • Compatibility: ITU-T G3 <p>General</p> <ul style="list-style-type: none"> • Interface: USB 2.0, Ethernet 10/100/1000 Base TX • Memory: 1GB <p>Including ADF</p>		
3	Multi Function Color Printer	<p><i>Color Print, Copy, Scan, Fax</i></p> <p>Printing</p> <ul style="list-style-type: none"> • <i>Print Speed (Black): 21ppm</i> • <i>Print Speed (Color): 21ppm</i> • Paper Input Capacity (Standard): 250 sheets <p>Copy</p> <ul style="list-style-type: none"> • Copy Speed (Black): 21cpm • Copy Speed (Color): 21cpm <p>Scan</p> <ul style="list-style-type: none"> • Method: Color CCD or CIS or Flatbed • Scan Speed(Black): 11ipm or higher <p>Fax</p> <ul style="list-style-type: none"> • Modem Speed (kbps): 33.6 	Set	1

		<ul style="list-style-type: none"> • Compatibility: ITU-T G3 • Fax Memory: 4MB or up to 250pages <p>General</p> <ul style="list-style-type: none"> • Interface: USB 2.0, Ethernet 10/100 Base TX • Memory: 256MB 		
4	Consumables & Stationery	<ul style="list-style-type: none"> • 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 • Toner for Digital Copier (Cyan): 2EA 	Set	1
5	UPS for PC	<ul style="list-style-type: none"> • 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: 11minute(225 Watts) <p>Comply with electricity standards of Colombia</p>	Set	7
6	Video Projector & Screen	<p>Projector</p> <ul style="list-style-type: none"> • Native Resolution: XGA (1024x768) • Brightness (ANSI-Lumens): 4000ANSI • Contrast Ratio (FIFO): 2000:1 and above • Lamp life (hours): 2500 and above <p>Portable Screen</p>	Set	1

		<ul style="list-style-type: none"> • Size: 120”(2400 x 1800) • Material: Matt White 		
7	Software	MS-Office , Home and Business	Set	7
8	Power & Network Cabling	<ul style="list-style-type: none"> • Network Cabling (9 Port): Cat 5 or 5e and miscellaneous materials • Power Cabling: HIV 600 heat-resistant Cable and power plugs of Colombian Type • Compliant with Colombian electricity standards 	Set	1

- Interior

No	Equipment	Specification	Unit	Q'ty
1	Furniture	<ul style="list-style-type: none"> • Office Desk: 7EA • Partition: 1Set • Chair: 15EA • Printer Desk: 1EA • Office Cabinet: 7EA • Conference Table(8person): 1EA • File Cabinet: 7EA <p>* Reference only and minimum requirements</p>	Set	1
2	Interior	<ul style="list-style-type: none"> • Wall, Roof, Window, etc • Air Conditioner <p>* The Bidder shall propose a space plan.</p>	Set	1

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

No	Equipment	Specification	Unit	Q'ty
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1	HD Camera System	<p>HD Camera system</p> <ul style="list-style-type: none"> • Sensor: 1/3 Type 3Cmos • Total pixels per sensor: 2.37 Mega pixels • Effective pixels per sensor: 2.07 Mega-pixels • Resolution: 1000 tv lines or more • Zoom ratio: 18X • Recording file format: MXF • Recording format: MPEG 2 LONG GOP • Recording frame rate: <ul style="list-style-type: none"> - 50Mbps: 1920 x 1080/60i,30p,24p; 1280x720/60p,30p, 24p - 35Mbps: 1920 x 1080/60i,30p,24p; 1280x720/60p,30p, 24p - 25Mbps: 1440 x 1080/60i,30p, 24p • HD / SD-SDI OUTPUT: YES • Time cord, Component Out function <p>Including Battery Pack 2ea, Carrying case, Remote Controller, CF Card Reader, Rain Cover, Memory 32GB 2ea</p>	Set	2
2	CCU for HD Camera System	<p>Camera Control Unit</p> <ul style="list-style-type: none"> • 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	<p>Transmitter</p> <ul style="list-style-type: none"> • Frequency response: 40 Hz ~ 18 KHz • Audio input connector: 3-pole mini jack 	Set	1

		<p>Receiver</p> <ul style="list-style-type: none"> • Frequency response: 40 Hz ~ 18 KHz • Signal to noise ratio: 60dB or more <p>*Proposed products shall have frequency range that is acceptable in Colombia.</p>		
4	Boom Microphone System	<ul style="list-style-type: none"> • Frequency Range: 20Hz - 20kHz • Maximum SPL: 131dB SPL • Sensitivity: -36.0dB re 1 Volt/Pascal • Output: XLR <p><i>Including Boom pole, Wind screen</i></p>	Set	1
5	Tripod System	<p>Tripod System for HD Camera with Prompter</p> <p>Head</p> <ul style="list-style-type: none"> • Payload range: 2 to 25kg / 4 to 55 lbs • Counterbalance: 16 steps, plus Boost Button • Tilt range: +90 ~ -70 • For tripods with 100mm bowls <p>Tripod</p> <ul style="list-style-type: none"> • Load Capacity: >40 kg • Weight: <2.6 kg • Min. Height: 460 mm • Max. Height: 1,550 mm • Material: Carbon fiber <p>Spreader</p> <ul style="list-style-type: none"> • Load Capacity: >50 kg • Weight: < 0.8 kg <p>Cover</p> <ul style="list-style-type: none"> • Weight: < 3.81 kg • Material: Polyethylene 	Set	1

		<p><i>Including Pan Bar, Dolly</i></p> <p>Tripod System for HD Camera only</p> <p>Head</p> <ul style="list-style-type: none"> • Counter balance: 5 + 0 • <i>Max. load: >4 kg</i> • Pan angle range: 360deg • Tilt angle range: > +90° to -75° • Grade of drag: 3 and 0 • Tripod interface: 75 mm bowl <p>Tripod</p> <ul style="list-style-type: none"> • Material: Dural aluminum • Max. Height: >1,500 mm • Min. Height: <405 mm • <i>Load Capacity: >20 kg</i> <p>Spreader</p> <ul style="list-style-type: none"> • <i>Load capacity: > 40 kg</i> • Weight: < 0.6 kg <p><i>Including Dolly, Carrying Bag</i></p>	Set	1
6	Studio LED Line Monitor	<ul style="list-style-type: none"> • <i>Screen Size: 42"</i> • <i>Resolution: 1920 x 1080p</i> • Display Type: LED • Aspect Ratio: 16:9 <p>Including Stand</p>	Set	1
7	Studio Monitor Speaker	<ul style="list-style-type: none"> • Type: Bi-amp 2-way powered speaker • Frequency response: 55Hz – 20kHz • <i>Output Power : 70W(Dynamic Power)</i> 	Set	2
8	Prompter	<ul style="list-style-type: none"> • Display size: 20." (508mm) • <i>Brightness: 1000 Nits</i> • <i>Resolution: 1280*1024</i> • <i>Contrast ratio: 1000:1</i> • Input signal: BNC(Composite),VGA,SDI 	Set	1

		<ul style="list-style-type: none"> • Reading Range: 7m(23ft) <p>Including QStart Software, USB Shuttle Xpress Control</p>		
9	Notebook for Prompter	<ul style="list-style-type: none"> • CPU: Intel Core i5-560M (2.66GHz) • Display: LED backlight / 13.3inch • Panel resolution: 1366x768 • HDD: 320GB • Memory: 2GB DDR3 • OS: Window 7 Professional <p>including DVD recorder, 6cell, 1Gbps LAN, 802.11n wireless LAN, HDMI, usb2.0</p>	Set	1
10	HD Switcher	<p>Video</p> <ul style="list-style-type: none"> • Input <ul style="list-style-type: none"> - 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 • Video Output: <ul style="list-style-type: none"> Up to 5 output connections and 2 independent A/V output signals - Mix and match output formats, connection types, resolutions and aspect ratios - HD-SDI, HD Component, SD-SDI, SD Component, Y/C (BNC) or Composite - HDMI, DVI and VGA output for displays or projector - Network output for live streaming • Recording: Multi-track, multi-format recording of up to 8 simultaneous channels <ul style="list-style-type: none"> - Native recording in up to 1080p with time code • Live Streaming: HD live streaming via Gigabit connection 	Set	1

		<p>Audio</p> <ul style="list-style-type: none"> • Inputs: <ul style="list-style-type: none"> - 8 SDI Embedded - 8 AES3/EBU - 8 x 2 Balanced XLR (Microphone/Line) - Phantom Power Support • Outputs: <ul style="list-style-type: none"> -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 transport streams), MP4, WMV, WebM, PSD, PNG, TGA, BMP, JPEG, EXR, RAW, TIF, AIFF, MP3, WAV, (Including Apple ProRes) • Processing: <ul style="list-style-type: none"> - Video: 4:4:4:4, 32-bit Floating Point - Audio: 4 channels, 96 kHz, 32-bit Floating Point • Monitoring: Selectable layouts for user interface and multi-view preview displays 		
11	Digital Video Deck	<ul style="list-style-type: none"> • HD Format <p>Connections</p> <ul style="list-style-type: none"> • SDI Video Input: 4 x 10-bit SD/HD/3 Gb/s SDI switchable • SDI Video Output: 4 x 10-bit SD/HD/3G 	Set	2

		<p>Gb/s SDI switchable</p> <ul style="list-style-type: none"> • SDI Audio Input:16 channels embedded in SD and HD • SDI Audio Output: 16 channels embedded in SD and HD <p>• Codec Support: Uncompressed QuickTime, Apple ProRes 422 (HQ) QuickTime, Avid DNxHD QuickTime, Avid DNxHD MXF</p> <ul style="list-style-type: none"> • 2K format support : 2048x1080p25 • Displays: Built-in LCD for video, audio and time code monitoring <p>Including SSD 128GB 2EA</p>		
12	2D/3D Non-Linear Editing System	<p>Editing Software</p> <ul style="list-style-type: none"> • Premiere Pro CS6 <p>Workstation</p> <ul style="list-style-type: none"> • MS Windows 7 Professional 64-bit OS • E5-2640 2.50Ghz 15MB 1333MHz 6Core X IEA • Graphic : 1GB and above • 16GB (4x4GB) DDR3 • 1000GB 1st HDD • 1000GB 2nd HDD • 16X DVD+-RW Super Multi SATA 1st Drive • USB Standard Keyboard • 22 inch monitor 2EA <p>Storage</p> <ul style="list-style-type: none"> • 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 	Set	1

		<ul style="list-style-type: none"> • Bay: Hotswap 8ea • Capacity : 16TB(2,000GB X 8EA) • HDD: Option(SATAII,SATA,ATA) • Cache: Standard 1GB • Power: Redundant by Dual 460W Power modules • Module - Drive Tray X 8EA • Embedded Web browser-based RAID manager 		
13	LCD Multi-view Monitor	<ul style="list-style-type: none"> • Screen Size: 42" • Resolution: 1920 x 1080p • Display Type: LED • Aspect Ratio: 16:9 <p>Including Stand</p>	Set	1
14	PGM Monitor	<ul style="list-style-type: none"> • Size: 17inch • Resolution: 1366X768 • Contrast ratio: 900:1 • Input: 2 X HD/SD SDI, 1xDVI, Analog Component / Composite / S-video / RGB • Output: 1 X HD/SD SDI through-out 	Set	1
15	HDV VTR	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • HD Sync: Tri-level • SD Sync: Color Black, 75% Color Bars • Accuracy: 3 ppm • User Controls: External Dipswitch 	Set	1

17	Brue Ray Player	<ul style="list-style-type: none"> • Video Out: 1.0 V (p-p), 75 Ω, sync negative, RCA jack x 1 • HDMI out: 19 pin (Type A, HDMI™ Connector) 	Set	1
18	HD-SDI Router	<ul style="list-style-type: none"> • 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	<p>Input</p> <ul style="list-style-type: none"> • Number of Input: 1 In (2 Channels L/R) • Impedance: 600 ohm or 20K ohm balanced <p>Output</p> <ul style="list-style-type: none"> • Number of Output: 6 Out (2 Channels L/R) • Loop Output: 1 Out (2 Channels L/R) • Impedance: 600 ohm balanced Output 	Set	1
20	Interactive Display Board	<ul style="list-style-type: none"> • Size: 82", 16:9 aspect ratio • Resolution: 1920×1080P, Full HD • Brightness: 450(cd/ m²) • Support multi touch gestures, Soft Key function • Recognition Speed: 125fps • Plug and Play(USB 2.0) <p>Including cables and accessories, S/W</p>	Set	1
21	Audio Mixer	<p>16ch digital audio mixer</p> <ul style="list-style-type: none"> • Chanel: 1~16 Microphones/Lines <p>Analog input</p> <ul style="list-style-type: none"> • CH Input 1 to 12: Microphones & Lines • CH Input 13 to 16: Lines • 2 TR In [L, R]: 600Ω Lines <p>Analog Output</p>	Set	1

		<ul style="list-style-type: none"> • Stereo Out [L,R]: 600Ω Lines • Omni Out(1 to 4): 10KΩ Lines • Monitor Out(L,R): 10KΩ Lines • 2TR out (L,R): 10KΩ Lines <p>Digital Input</p> <ul style="list-style-type: none"> • 2TR IN Digital: RCA Pin Jack • ADAT In: Optical <p>Digital Output</p> <ul style="list-style-type: none"> • 2TR Out Digital: RCA Pin Jack ADAT Out: Optical 		
22	Control Room Monitor Speaker	<ul style="list-style-type: none"> • Type: Bi-amp 2-way powered speaker • Frequency response: 55Hz – 20kHz • Output Power : 70W(Dynamic Power) 	Set	2
23	Wired Microphone	<ul style="list-style-type: none"> • 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 <p>Including Stand</p>	Set	2
	Gooseneck Microphone	<ul style="list-style-type: none"> • 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 <p>Including Stand</p>	Set	1
24	W/L Microphone	<ul style="list-style-type: none"> • Frequency response: 25~18000Hz <p>Receiver</p> <ul style="list-style-type: none"> • Antenna connector: 2x BNC • Audio output level (balanced): XLR <p>Transmitter</p>	Set	2

		<ul style="list-style-type: none"> • RF output power typ. 30 mW • Power supply 2x AA batteries <p>Microphone</p> <ul style="list-style-type: none"> • Transducer principle : condenser • AF sensitivity: 20 mV/Pa omni directional • Sound pressure level (SPL): 130 dB(SPL) max. <p>*Comply with frequency rate of Colombia</p>		
25	Headphone	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • Panel Microphone Input Type: Electret • Headset Microphone Input Type: Dynamic • Speaker Output <ul style="list-style-type: none"> - Load Impedance: $\geq 4\Omega$ - Frequency Response (Panel Mic): 600 - 10KHz ± 3dB <p>Including Headset 3EA, Belt-pack 2EA</p>	Set	1
28	Back-up System	<ul style="list-style-type: none"> • LTO Backup system • Sustained Transfer Rate <ul style="list-style-type: none"> - 100MB/s direct attached, - up to 75 MB/s network • Hard Disk Drive <ul style="list-style-type: none"> - 2000 GB X 2 – RAID0/1 • Format Compatibility 	Set	1

		<ul style="list-style-type: none"> - GNU or POSIX tar v1.20 or later, LTFS 2.0 Direct Attached File Systems Supported • Drive <ul style="list-style-type: none"> - 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 <ul style="list-style-type: none"> - Archival Life — 30 years - Durability — 5,000 load/unload cycles <p>Including LTO5 1.5TB Tape 10ea, Cleaning tape 1ea, Rack mount Kit</p>		
29	On Air Lamp	<ul style="list-style-type: none"> • Lamp Type: Red LED Type • Tally Input: 10mA 	Set	2
30	UPS	<ul style="list-style-type: none"> • Output Power Capacity: 10 KVA • Input <ul style="list-style-type: none"> - Voltage Range: 90~130AVC - Frequency: 50/60Hz ± 5% - Max Input Current: 112A • Output <ul style="list-style-type: none"> - 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 • Backup Time: 30 minutes or less • Comply with electricity standards of Colombia 	Set	2
31	Chroma key Screen	<ul style="list-style-type: none"> • 150” Electronic Screen • 3000 X 4000 (mm) • Color: Blue 	Set	1

32	Console Desk	<ul style="list-style-type: none"> • Material: Wood and Steel • Number of Bay: 5 Bay • Base: Rack Type 	Set	1
33	NLE Desk	<ul style="list-style-type: none"> • Material: Wood • desk for 2D/3D Editing System 	Set	1
34	Power Distributer	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 19", 42U • Aluminum 	Set	1

- Studio Soundproof Construction

No	Equipment	Specification	Unit	Q'ty
1	Soundproof Interior	<ul style="list-style-type: none"> • Soundproof system and doors, dustproof system, Furniture • Air conditioner 2 Set or more • Extinguishing System: Carbon Dioxide Extinguishing System or Halogen Compounds Extinguishing System <p>* Reference only – The Bidder shall propose an optimized space plan. *Comply with electricity standards of Colombia</p>	Set	1
2	Power Cabling and Installation	<ul style="list-style-type: none"> • Electric Power Cabling • Audio/Visual Signal Cabling • Equipment Installation <p><i>* For Audio/Visual Signal Cabling, Cables and connectors from "Beldon" or "Gepco" are advised.</i></p> <p>* Comply with electricity standards of Colombia</p>	Set	1

3	Studio Lighting	<ul style="list-style-type: none"> • 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 <p>* Reference only – The Bidder shall propose an optimized space plan.</p> <p>*Proposed lightings shall be low-heat emitting products.</p> <p>*Comply with electricity standards of Colombia</p>	Set	1
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5) Content Development and Research Office

- H/W and S/W

No	Equipment	Specification	Unit	Q'ty
1	Operator Computer	<ul style="list-style-type: none"> • Processor: Intel core i5-2400 processor (3.10 GHZ,6MB) and above • Graphics: 1GB or 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 <p>Including Anti-Virus Program</p>	Set	10
2	Multi Function Color Printer	Color Print, Copy, Scan, Fax	Set	2

		<p>Printing</p> <ul style="list-style-type: none"> • Print Speed (Black): 21ppm • Print Speed (Color): 21ppm • Paper Input Capacity (Standard): 250 sheets <p>Copy</p> <ul style="list-style-type: none"> • Copy Speed (Black): 21cpm • Copy Speed (Color): 21cpm <p>Scan</p> <ul style="list-style-type: none"> • Method: Color CCD or CIS or Flatbed • Scan Speed(Black): 11ipm or higher <p>Fax</p> <ul style="list-style-type: none"> • Modem Speed (kbps): 33.6 • Compatibility: ITU-T G3 • Fax Memory: 4MB or up to 250pages <p>General</p> <ul style="list-style-type: none"> • Interface: USB 2.0, Ethernet 10/100 Base TX • Memory: 256MB 		
3	UPS for PC	<ul style="list-style-type: none"> • 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: 11minute(225 Watts) • Comply with electricity standards of Colombia 	Set	10
4	Digital Copier	<ul style="list-style-type: none"> • Color Print, Copy, Scan, Fax <p>Printing</p>	Set	1

		<ul style="list-style-type: none"> • Print Speed (Black): Up to 25 ppm • Print Speed (Color): Up to 25 ppm • Print Resolution (dpi): Up to 600 x 600 dpi <p>Copy</p> <ul style="list-style-type: none"> • Copy Speed (Black): Up to 25 cpm • Copy Speed (Color): Up to 25 cpm • Copy Resolution: 600 x 600 dpi • <p>Scan</p> <ul style="list-style-type: none"> • Method: Color CCD or CIS or Flatbed • Scan Speed: 20 ipm • Resolution (Optical): 600 x 600 dpi • Resolution (Enhanced): 4,800 x 4,800 dpi <p>Fax</p> <ul style="list-style-type: none"> • Compatibility: ITU-T G3 <p>General</p> <ul style="list-style-type: none"> • Interface: USB 2.0, Ethernet 10/100/1000 Base TX • Memory: 1GB <p>Including ADF</p>		
5	Digital Camera	<ul style="list-style-type: none"> • 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 <p>• Including Tripod, Rechargeable Battery, Bag, Lens(18~55mm Lens), 32GB</p>	Set	2

		Memory card, Compatible Microphone		
6	HD Camcorder	<ul style="list-style-type: none"> • Type: 1080p HD Switch Grip Camcorder • Lens: Optical Zoom: 20x, Digital Zoom: 40x • 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), 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 	Set	2
7	Video Projector & Screen	<p>Projector</p> <ul style="list-style-type: none"> • Native Resolution: XGA (1024x768) • Brightness (ANSI-Lumens): 4000ANSI • Contrast Ratio (FIFO): 2000:1 and above • Lamp life (hours): 2500 and above <p>Portable Screen</p> <ul style="list-style-type: none"> • Size: 120"(2400 x 1800) • Material: Matt White 	Set	1
8	Consumables & Stationery	<ul style="list-style-type: none"> • 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 	Set	1

		Toner for Digital Copier (Cyan): 3EA		
9	CD/DVD Duplicator	<ul style="list-style-type: none"> • 1:11 Duplication • 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 <p><i>Stand alone type</i></p>	Set	1
10	CD/DVD Printer	<ul style="list-style-type: none"> • 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 <p>Including Label Design S/W</p>	Set	1
11	DAS /NAS Storage for RIC content backup	<ul style="list-style-type: none"> • 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, Office University 2010	Set	10
		Creative Suite 6 Design & Web Premium Student and Teacher Edition	Set	2
		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	800
14	Power & Network Cabling	<ul style="list-style-type: none"> • Network Cabling(14 Port): Cat 5 or 5e and miscellaneous materials • Power Cabling: HIV 600 heat-resistant Cable and power plugs of Colombian Type • Comply with electricity standards of Colombia 	Set	1

- Interior

No	Equipment	Specification	Unit	Q'ty
1	Furniture	<ul style="list-style-type: none"> • Office Desk: 10EA • Partition: 1Set • Chair: 18EA • Printer Desk: 2EA • Office Cabinet: 8EA • Conference Table(8person) 1EA • File Cabinet: 10EA <p>* Reference only and minimum requirements</p>	Set	1
2	Interior	<ul style="list-style-type: none"> • Wall, Roof, Window, etc • Air Conditioner <p>*The Bidder shall propose a space plan.</p>	Set	1

6) Multimedia Classroom

- H/W and S/W

No	Equipment	Specification	Unit	Q'ty
	A. Electronic Desk Board			
1	PC for Trainer	<ul style="list-style-type: none"> • Processor: Intel core i5-2400 processor(3.10 GHZ,6MB) and above • Graphics: 1GB or 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 <p>Including Anti-Virus Program & HD Encoder</p>	Set	1
2	PC for Trainee	<ul style="list-style-type: none"> • Processor: Intel core i5-2400 processor(3.10 GHZ,6MB) and above • Graphics: 1GB or 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 <p>Including Anti-Virus Program</p>	Set	30
3	Multi Function Color Printer	<p>Color Print, Copy, Scan, Fax</p> <p>Printing</p> <ul style="list-style-type: none"> • Print Speed (Black): 21ppm • Print Speed (Color): 21ppm • Paper Input Capacity (Standard): 250 sheets <p>Copy</p> <ul style="list-style-type: none"> • Copy Speed (Black): 21cpm 	Set	2

		<ul style="list-style-type: none"> • Copy Speed (Color): 21cpm <p>Scan</p> <ul style="list-style-type: none"> • Method: Color CCD or CIS or Flatbed • Scan Speed(Black): 11ipm or higher <p>Fax</p> <ul style="list-style-type: none"> • Modem Speed (kbps): 33.6 • Compatibility: ITU-T G3 • Fax Memory: 4MB or up to 250pages <p>General</p> <ul style="list-style-type: none"> • Interface: USB 2.0, Ethernet 10/100 Base TX • Memory: 256MB 		
4	Software	MS-Office, Office University 2010	Set	31
5	e-Podium	<ul style="list-style-type: none"> • Type: Stand Type • Top unit equipped with a minimum 21” writable LCD touch monitor. • PC and monitor locking system to prevent theft. • Built-in board cable and microphone <p>Including Gooseneck Microphone, content authoring S/W</p> <p>* This product shall come form the same manufacturer of the Interactive Display Board.</p>	Set	1
6	Interactive Display Board	<ul style="list-style-type: none"> • Size: 70", 16:9 aspect ratio • Resolution: 1920×1080P, Full HD • Brightness: 450(cd/ m²) • Support multi-touch gestures, soft key function • Recognition Speed: 125fps • Plug and Play(USB 2.0) 	Set	1

		Including cables and accessories, S/W		
	B. Audio System			
1	Wireless Microphone	<p>Handheld Transmitter</p> <ul style="list-style-type: none"> • 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 <p>Receiver:</p> <ul style="list-style-type: none"> • XLR connector (into 600 Ω load): -13 dBV • XLR Out: Impedence balanced <p>Including external power supply</p> <p>*Comply with frequency rate of Colombia</p>	Set	2
2	Wired Microphone	<ul style="list-style-type: none"> • Type: Dynamic • Frequency Response: 50 to 15,000 Hz • Polar Pattern: Cardioid • Sensitivity: -54.5 dBV/Pa (1.85 mV) <p>Including 10m Cable</p>	Set	2
3	DSP Mixer	<ul style="list-style-type: none"> • Acoustical Echo Cancellation • Noise Cancellation • Built-in telephone interface and 35W power amplication <p>Audio Performance</p> <ul style="list-style-type: none"> • Frequency Response: 20Hz to 22KHz \pm1dB • Dynamic Range: 105dB(non A-weighted) <p>Matrix Mixing Parameters</p> <ul style="list-style-type: none"> • 12 analog in/out • 18 expansion bus in/out • 8 assignable processing blocks in/out • 4X35W speaker amplication • 1 telco input/1 telco out 	Set	1

		<p>Control</p> <ul style="list-style-type: none"> • 10/100 Mbps Ethernet Network Port and PC Port • RS-232(DB-9 female) • USB 2.0 compatible <p>Including Configuration and Admin Software</p>		
4	Ceiling Speaker	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • RGBHV+Stereo, 8in 8out • RS-232 Control <p>Audio</p> <ul style="list-style-type: none"> • Input Level(max): +14dBu, unbalanced • Input Impedance: 18KΩ • Output Level(max): +14dBu, unbalanced • Output Impedance: 50Ω • Connectors: 3T <p>Wideband Video</p> <ul style="list-style-type: none"> • Input Level(max): +/- 1.5V • Input Impedance: 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	<ul style="list-style-type: none"> • 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, USB, SD Memory 	Set	1
3	Video Conference System	<p>Video Standards and Protocols</p> <ul style="list-style-type: none"> • H.264 / H.263++ / H.261 / H.239 / People+Content / H.263 & H.264 Video Error Concealment 	Set	1

		<p>People Video Resolution</p> <ul style="list-style-type: none"> • 720p, 30fps at 1 Mbps–2 Mbps • 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) <p>Content Video Resolution</p> <ul style="list-style-type: none"> • Up to 720p • Input: SXGA (1280x1024), XGA (1024 x 768),SVGA (800 x 600), VGA (640 x 480) • Output: XGA (1024x768), SVGA (800x600) <p>Audio Standards and Protocols</p> <ul style="list-style-type: none"> • Stereo Surround • 22 kHz bandwidth • 14 kHz bandwidth, G.722.1 <p>Other ITU-Supported Standards</p> <ul style="list-style-type: none"> • 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 <p>including document share function</p>		
4	Camera	<p>PTZ Camera</p> <ul style="list-style-type: none"> • Image device: 1/3 type, CMOS • Video signal: 1080/59.94i, 1080/50i, 1080/29.97p, 1080/25p, 720/59.94p,720/50p, 720/29.97p,720/25p ntsc/pal • Lens: 10x optical/ 4x digital • Video out: HD-SDI, Analog Component 	Set	2
5	Motion Detection Camera System	<p>Sensor Camera</p> <ul style="list-style-type: none"> • 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 	Set	1

		<p>Motion Tracking Controller</p> <ul style="list-style-type: none"> • E6600CPU, 1GB SDRAM, 120GB HDD, Composite Video Input, Rack Type • Motion tracking Control H/W • RS-232C, USB interface <p>Including Cam Motion S/W</p>		
6	Monitor	<ul style="list-style-type: none"> • Screen Size: 42" • Resolution: 1920 x 1080p • Display Type: LED • 4 HDMI port <p>Including Ceiling Type Bracket</p>	Set	2
	D. Classroom Control			
1	Controller	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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 	Set	1

		<ul style="list-style-type: none"> • Microphone 		
4	iPad License	<ul style="list-style-type: none"> • Administrators shall be able to control and manage the equipment through iPad. 	Set	1
5	Program Fee	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 1 Teacher and 30 Student License <p>Recovery management function</p> <ul style="list-style-type: none"> • System recovery/Existing status store • Reserved recovery set-up • Recovery install/delete <p>PC management function</p> <ul style="list-style-type: none"> • Screen lock/unlock • Internet lock/unlock • Registry lock/unlock • Task management lock/unlock • Program execution lock/unlock <p>Instruction tool</p> <ul style="list-style-type: none"> • Sending message • Sending notice message • Remote execution • Attendance check/Attendance data print • Client monitoring 	Set	1
	E. Miscellaneous			
1	UPS	<ul style="list-style-type: none"> • Output Power Capacity: 10 KVA • Input <ul style="list-style-type: none"> - Voltage Range: 90~130AVC - Frequency: 50/60Hz ± 5% - Max Input Current: 112A • Output <ul style="list-style-type: none"> - Voltage Range: 110AVC± 1% - Frequency: 50/60Hz ± 5% - AVR Function: included 	Set	1

		<ul style="list-style-type: none"> • Battery Type Maintenance-free sealed Lead-Acid battery • Typical recharge time: 90% capacity after 8 hours • Surge Protection • Backup Time: 30 minutes or less <ul style="list-style-type: none"> • Comply with electricity standards of Colombia 		
2	UPS for PC	<ul style="list-style-type: none"> • 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: 11minute(225 Watts) <ul style="list-style-type: none"> • Comply with electricity standards of Colombia 	Set	31
3	Rack	<ul style="list-style-type: none"> • 19" 42U • Aluminum 	Set	1
4	Power & Network Cabling	<ul style="list-style-type: none"> • Network Cabling (35ports): Cat 5 or 5e and miscellaneous materials • Power Cabling: HIV 600 heat-resistant Cable and power plugs of Colombian Type <ul style="list-style-type: none"> • Comply with electricity standards of Colombia 	Set	1

- Interior

No	Equipment	Specification	Unit	Q'ty
1	Furniture	<ul style="list-style-type: none"> • Office Desk for Trainees: 30EA • Chair: 31EA • Printer Desk: 2EA <p>* Reference only and minimum requirements</p>	Set	1

2	Interior	<ul style="list-style-type: none"> • Wall, Roof, Window, and etc • Air Conditioner <p>* The Bidder shall propose a space plan.</p>	Set	1
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7) General Classroom
- H/W and S/W

No	Equipment	Specification	Unit	Q'ty
	A. Electronic Desk Board			
1	PC for Trainer	<ul style="list-style-type: none"> • Processor: Intel core i5-2400 processor(3.10 GHZ,6MB) and above • Graphics: 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 <p>Including Anti-Virus Program</p>	Set	1
2	PC for Trainee	<ul style="list-style-type: none"> • Processor: Intel core i5-2400 processor(3.10 GHZ,6MB) and above • Graphics: 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 <ul style="list-style-type: none"> • Including Anti-Virus Program 	Set	15
3	Multi Function Color Printer	<p>Color Print, Copy, Scan, Fax</p> <p>Printing</p>	Set	2

		<ul style="list-style-type: none"> • Print Speed (Black): 21ppm • Print Speed (Color): 21ppm • Paper Input Capacity (Standard): 250 sheets <p>Copy</p> <ul style="list-style-type: none"> • Copy Speed (Black): 21cpm • Copy Speed (Color): 21cpm <p>Scan</p> <ul style="list-style-type: none"> • Method: Color CCD or CIS or Flatbed • Scan Speed(Black): 11ipm or higher <p>Fax</p> <ul style="list-style-type: none"> • Modem Speed (kbps): 33.6 • Compatibility: ITU-T G3 • Fax Memory: 4MB or up to 250pages <p>General</p> <ul style="list-style-type: none"> • Interface: USB 2.0, Ethernet 10/100 Base TX • Memory: 256MB 		
4	Software	MS-Office, Office University 2010	Set	16
5	e-Podium	<ul style="list-style-type: none"> • Type: Stand Type • Top unit equipped with a minimum 21" writable LCD Tablet monitor. • PC and monitor locking system to prevent theft. • Built-in board cable and microphone <p>Including Gooseneck Microphone, content authoring S/W</p> <ul style="list-style-type: none"> • This product shall come form the same manufacturer of the Interactive Display Board. 	Set	1
6	Video Projector and	<p>Projector</p> <ul style="list-style-type: none"> • Native Resolution: XGA (1024x768) 	Set	1

	Screen	<ul style="list-style-type: none"> • Brightness (ANSI-Lumens): 4000ANSI • Contrast Ratio (FIFO): 2000:1 and above • Lamp life (hours): 2500 and above <p>Screen</p> <ul style="list-style-type: none"> • Size: 120”(2400 x 1800) • Material: Matt White • Motorized 		
	B. Audio System			
1	Wireless Microphone	<p>Handheld Transmitter</p> <ul style="list-style-type: none"> • 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 <p>Receiver:</p> <ul style="list-style-type: none"> • XLR connector (into 600 Ω load): -13 dBV • XLR Out: Impedance balanced <p>Including external power supply</p> <p>Comply with frequency rate of Colombia</p>	Set	2
2	Wired Microphone	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • Acoustical Echo Cancellation • Noise Cancellation • Built-in telephone interface and 35W power amplification <p>Audio Performance</p> <ul style="list-style-type: none"> • Frequency Response: 20Hz to 22KHz ±1dB • Dynamic Range: 105dB(non A-weighted) <p>Matrix Mixing Parameters</p>	Set	1

		<ul style="list-style-type: none"> • 12 analog in/out • 18 expansion bus in/out • 8 assignable processing blocks in/out • 4X35W speaker amplification • 1 telco input/1 telco out <p>Control</p> <ul style="list-style-type: none"> • 10/100 Mbps Ethernet Network Port and PC Port • RS-232(DB-9 female) • USB 2.0 compatible <p>Including Configuration and Admin Software</p>		
4	Ceiling Speaker	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • RGBHV+Stereo, 8in 8out • RS-232 Control <p>Audio</p> <ul style="list-style-type: none"> • Input Level(max): +14dBu, unbalanced • Input Impedence: 18KΩ • Output Level(max): +14dBu, unbalanced • Output Impedence: 50Ω • Connectors: 3T <p>Wideband Video</p> <ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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 	Set	1

		<ul style="list-style-type: none"> • Interface: RS-232C, USB, SD Memory 		
	D. Classroom Control			
1	Controller	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • Administrators shall be able to control and manage the equipment through iPad. 	Set	1
5	Program Fee	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • <i>1 Teacher and 15 Student License</i> Recovery management function • System recovery/Existing status store 	Set	1

		<ul style="list-style-type: none"> • Reserved recovery set-up • Recovery install/delete <p>PC management function</p> <ul style="list-style-type: none"> • Screen lock/unlock • Internet lock/unlock • Registry lock/unlock • Task management lock/unlock • Program execution lock/unlock <p>Instruction tool</p> <ul style="list-style-type: none"> • Sending message • Sending notice message • Remote execution • Attendance check/Attendance data print • Client monitoring 		
	E. Miscellaneous			
1	UPS	<ul style="list-style-type: none"> • Output Power Capacity: 10 KVA • Input <ul style="list-style-type: none"> - Voltage Range: 90~130AVC - Frequency: 50/60Hz ± 5% - Max Input Current: 112A • Output <ul style="list-style-type: none"> - 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 • Backup Time: 30 minutes or less <p>• Comply with electricity standards of Colombia</p>	Set	1
2	UPS for PC	<ul style="list-style-type: none"> • Output Capacity: 450Watts / 750 VA • Max Configurable Power: 450 Watts / 750 VA • Input /Output Voltage: 120V, 50/60Hz ± 3Hz 	Set	16

		<ul style="list-style-type: none"> • Battery Type: sealed Lead-Acid battery • Typical recharge time: 16hour • Backup Time at Half Load: 11minute(225 Watts) • Comply with electricity standards of Colombia 		
3	Rack	<ul style="list-style-type: none"> • 19" 42U • Aluminum 	Set	1
4	Power & Network Cabling	<ul style="list-style-type: none"> • Network Cabling(19 Port): Cat 5 or 5e and miscellaneous materials • Power Cabling: HIV 600 heat-resistant Cable and power plugs of Colombian Type • Comply with electricity standards of Colombia 	Set	1

- Interior

No	Equipment	Specification	Unit	Q'ty
1	Furniture	<ul style="list-style-type: none"> • Office Desk for Trainee: 15EA • Chair: 31EA • Printer Desk: 2EA * Reference only and minimum requirements 	Set	1
2	Interior	<ul style="list-style-type: none"> • Wall, Roof, Window, etc • 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	<ul style="list-style-type: none"> • Image Sensor: 1/3" CCD • Pixels: 410,000 Pixels, 811(H) X 494(V) • Horizontal Resolution: 600TV 	Set	10

		<p><i>Line(Color), 700TV Line(B/W)</i></p> <ul style="list-style-type: none"> • Video Out: CVBS: 1.0p_p, Composite • S/N Ration: 52dB • Minimum Illumination(B/W): 0.01Lux(50IRE@F1.2), 0.00002Lux(Sens-up, x512) • OSD: Spanish 		
2	Motion Detection Sensor	<p>Motion Detection Sensor (8 Set)</p> <ul style="list-style-type: none"> • Sensing Method: Infrared • Detection Range: 12m X 1m • Mount Type: Ceiling Type • Alarm: NC/NO <p>Door Sensor(10Set)</p> <ul style="list-style-type: none"> • Sensing Distance: 25~55mm • Installation Location: In the Door or Window • Materials: Cover(ABS), Magnet <p>* Required number and kind of equipment may vary depending on the actual space of RIC.</p>	Set	1
3	DVR	<ul style="list-style-type: none"> • <i>Video Input: Composite 16CH</i> • Monitor Output <ul style="list-style-type: none"> - Main Composite; BNC, 1 Vp-p, 75 ohm - VGA: 800X600, 1024X768, 1280X1024 - HDMI: 480P/720P/1080P(1920X1080) • <i>Audio: 16CH In/1CH Out</i> • Recoding <ul style="list-style-type: none"> - Compression: H.264 - <i>Resolution: up to 480FPS @ 704X480</i> • Searching: Date/time, Event, Back up, Pos, Motion (*All Search Included Prview Function) • Alarm in/out: 16 line in / 4 relay out • <i>HDD: 1TB</i> • Network <ul style="list-style-type: none"> - <i>Network: 10/100/1000Mbps</i> 	Set	1

		<ul style="list-style-type: none"> - USB 2.0: 3 Ports - Web Viewer Function • PTZ Control:RS-485 • Serial Interface: RS-232 • including 17" Monitor 		
4	UPS	<ul style="list-style-type: none"> • Output Power Capacity: 5 KVA • Input <ul style="list-style-type: none"> - Voltage Range: 100 ~ 280V - Frequency: 50/60Hz ± 5% • Output <ul style="list-style-type: none"> - Voltage Range: 120V - 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	<ul style="list-style-type: none"> • 19", 22U • Aluminum 	Set	1

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

No	Equipment	Specification	Unit	Q'ty
1	F/W	<ul style="list-style-type: none"> • Anti-Virus • Child Protection • 1Year License for Server 	Set	50
2	Network Switch	<ul style="list-style-type: none"> • Ports: 22 autosensing 10/100/1000 ports or more • 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- 	Set	50

		<p>byte packets)</p> <ul style="list-style-type: none"> • Management features: Web browser <p>Switching capacity: 48 Gbps</p>		
3	Proxy Server	<ul style="list-style-type: none"> • 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 <p><i>including 22" LCD Monitor</i></p>	Set	50
4	Access Point (WiFi)	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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: HD Camera • Connectivity: 802.11 b/g/n, Gigabit Wired Ethernet LAN, Bluetooth • Keyboard: 101 Key(Spanish or English) • Touch Pad <p>Including AC Adapter, Optical USB</p>	Set	1100

		Mouse, Anti-Virus S/W		
6	Software	<ul style="list-style-type: none"> • MS-Office, Home and Student 	Set	1100
7	Multi Function Printer	<ul style="list-style-type: none"> • Color Print, Copy, Scan <p>Printing</p> <ul style="list-style-type: none"> • Print Speed (Black): 17ppm or higher • Print Speed (Color): 4ppm <p>Copy</p> <ul style="list-style-type: none"> • Copy Speed (Black): 17cpm or higher • Copy Speed (Color): 4ppm <p>Scan</p> <ul style="list-style-type: none"> • Method: Color CIS or CCD or Flatbed • Resolution (Optical): up to 1200dpi or higher • Scan Speed: up to 14ppm <p>General</p> <ul style="list-style-type: none"> • Interface: High-Speed USB 2.0 / 10/100 Base Tx / Wireless 802.11 b/g/n • Memory: 128MB 	Set	100
8	Toner	<ul style="list-style-type: none"> • Toner for Multifunction Color Printer(Black): 300EA • Toner for Multifunction Color Printer(Yellow): 300EA • Toner for Multifunction Color Printer(Magenta): 300EA • Toner for Multifunction Color Printer(Cyan): 300EA 	Set	1
9	Projector and Portable Screen	<p>Projector</p> <ul style="list-style-type: none"> • 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 <ul style="list-style-type: none"> • Size: 120”(2400 x 1800) • Material: Matt White 		
10	Portable Station	<ul style="list-style-type: none"> • Enough storage to accommodate 11 or more notebooks • Portable interface • Charging system • Security lock 	Set	100
11	UPS	<ul style="list-style-type: none"> • Capacity: 3000VA • Output Voltage: 120V • Output Frequency: 50 or 60Hz +/-10% • Voltage Regulation(AVR) function • Input Voltage: 120V • Input Frequency: 50 or 60Hz +/-3% • 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 • * Comply with electricity standards of Colombia 	Set	50
12	Power Extension	<ul style="list-style-type: none"> • 6 Socket • 3M • * Comply with electricity standards of Colombia 	Set	200
13	Classroom Management S/W	<ul style="list-style-type: none"> • 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 • Internet lock/unlock • Registry lock/unlock 	Set	50

		<ul style="list-style-type: none">• Task management lock/unlock• Program execution lock/unlock <p>Instruction tool</p> <ul style="list-style-type: none">• Sending message• Sending notice message• Remote execution• Attendance check/Attendance data print• Client monitoring		
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