

## Technical specifications for the Upgradation of VC hall at LPSC workcentre LHWC-HAL Campus

### 1) Full HD PTZ USB Conferencing Camera With Remote Control

Quantity: 1 No.

Sl. No.	Description	Specification
1	Type of Camera	PTZ
2	Sensor	1/2.8 inch to 1/ 2.5 inch CMOS
3	Resolution	1080P
4	Frame Rate	60fps
5	Optical Zoom	20X or better
6	FOV	60 Deg or better
7	Horizontal Rotation Range	±170 Deg
8	Vertical Rotation Range	-30 to +90 deg
9	Backlight Compensation	Yes
10	Camera Preset required	16 or more
11	Video Output: HDMI Port	Yes
12	Video Output: USB 3.0 Port	Yes
13	RJ-45 Port	Yes
14	IR Remote Control	Yes
15	Height adjustable Tripod stand	Yes

### 2) 65 inches Display

Quantity: 2 Nos.

Sl. No.	Description	Specification
1	Technology	LED Back Lit
2	Screen Size (Diagonal)	63 to 67 inches
3	Panel technology	IPS/VA
4	Resolution (Pixels)	3840 x 2160
5	Aspect Ratio	16:9
6	Brightness Nits	500 nits or better
7	Viewing Angle	170 Deg or better
8	Speakers	Yes
9	HDMI Port	2
10	Audio Port	1
11	USB Port	2
12	Ethernet Port	1
13	Tiltable wall Mount Kit and Other Accessories for Installation.	Yes

### 3) 75 inches Display

Quantity: 2 Nos.

Sl. No.	Description	Specification
1	Technology	LED Back Lit
2	Screen Size (Diagonal)	73 to 77 inches
3	Panel technology	IPS/VA
4	Resolution (Pixels)	3840 x 2160

5	Aspect Ratio	16:9
6	Brightness Nits	500 Nits or better
7	Viewing Angle	170 Deg or better
8	Speakers	Yes
9	HDMI Port	2
10	Audio Port	1
11	USB Port	2
12	Ethernet Port	1
13	Tiltable wall Mount Kit and Other Accessories for Installation.	Yes

#### 4) Table Top Boundary Layer Microphones

**Quantity:** 17 Nos.

SI. No.	Description	Specification
1	Type	Condenser
2	Acoustic Principle	Boundary Layer
3	Pick-up Pattern	Cardioid
4	Sensitivity	10 mV / Pa or better
5	Frequency Response	100 Hz to 15KHz or better
6	Maximum Sound Pressure Level	100 to 132 dB or better
7	Phantom Power	48V
8	LED Indicator	Yes
9	Microphone Modes	Toggle on/off and Push to Mute and Push to Talk

#### 5) Wireless Tie-clip (Collar/lapel) Microphones

**Quantity:** 2 Nos.

SI. No.	Description	Specification
1	Type	Wireless
2	Pick-up Pattern	Unidirectional
3	Form Factor	Collar worn
4	Transducer Type	Condenser
5	Frequency Response	100 -15KHz or Better
6	Operating Range	60 meter or better (Line of sight)
7	Number of compatible channels in a group	10 or more
8	LED Indicator	Yes
9	On/off Switch (With Batteries AA type)	Yes
10	Channel / Frequency Selection	Yes
11	Transmitter and receiver units	Yes

#### 6) Wireless Hand Held Microphone

**Quantity:** 2 Nos.

SI. No.	Description	Specification
1	Type	Wireless
2	Pickup Pattern	Unidirectional
3	Form Factor	Handheld
4	Transducer Type	Condenser
5	Audio Frequency Response	100-15KHz or Better

6	Channel / Frequency Selection	Yes
7	Number of compatible channels in a group	10 or more
8	Power Requirement	AA Battery 2 Nos.
9	Working Range	60 m or Better (Line of sight)
10	LED Indicator	Yes
11	On/off Switch	Yes
12	Transmitter and Receiver Units	Yes Both required

## 7) Ceiling Mount Speakers

**Quantity:** 8 Nos.

SI. No.	Description	Specification
1	Mount Type	Ceiling
2	System Type	6 inch full range or better
3	Coverage Angle	110 degree Conical or better
4	Nominal Impedance	8 ohm
5	Power Rating (Continuous/RMS)	30 Watts or better
6	Transformer Taps (100V)	30w, 15w
7	Sensitivity (1w, 1M)	85dB SPL or better
8	Maximum Sound Pressure Level	100dB or better

## 8) Power Amplifiers

**Quantity:** 2 Nos.

SI. No.	Description	Specification
1	Type	4 Channel Class D power amplifier
2	Frequency Response	100 Hz to 15Khz or better
3	Signal to Noise Ratio	90dB or better
4	Output Power (8 ohm)	120 watts per channel or better
5	100 V High Impedance	Yes

## 9) Audio DSP with 12 analog inputs and 8 analog outputs

**Quantity:** 2 Nos.

SI. No.	Description	Specification
1	Analog Inputs	12 Inputs should support Mic/Line level inputs with individual AEC processing on Phoenix/Combicon removable screw connector and selectable 48V Phantom power
2	Analog Outputs	8 Outputs 8 Mic/Line level outputs on Phoenix/Combicon removable screw connector
3	Noise Cancellation	Yes
4	Frequency Response	100 Hz to 15Khz or better
5	RS-232 Serial Port	Yes
6	RJ45 Ethernet Port	Yes
7	Network Audio Port (AVB/Dante/BLUlink or equivalent)	Yes
8	USB Audio Support	Yes
9	Both DSP Units of the Same OEM may	Yes

	be Cascaded to Support 24 mic / line inputs and 16 mic / line level outputs.	
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### 10) 8\*8 HDMI Matrix Switcher

**Quantity:** 1 No.

Sl. No.	Description	Specification
1	Inputs	8 HDMI on female HDMI connector
2	Outputs	8 HDMI on female HDMI connector
3	Resolution	4K @60Hz (4:4:4) or better
4	HDMI 2.0Support	yes
5	Maximum Data Rate	17 Gbps or better
6	ARC support	yes
7	Content Protection HDCP 2.2	Yes
8	EDID Management	Yes
9	RJ-45 Ethernet port	1 or more
10	RS-232 Port	1 or more
11	Stereo Balanced Audio Output on a 5-pin Terminal Block Connector	Yes

### 11) 1\*4 HDMI Distribution Amplifier

**Quantity:** 2 Nos.

Sl. No.	Description	Specification
1	Inputs	1 HDMI on female HDMI connector
2	Outputs	4 HDMI on female HDMI connector
3	Resolution	4K @60Hz (4:4:4)
4	HDMI 2.0 Support	Yes
5	Content Protection HDCP 2.2	Yes
6	EDID Management	Yes
7	RS-232 Port	1 or more

### 12) USB 3.0 Peripheral Sharing Switch

**Quantity:** 1 No.

Sl. No.	Description	Specification
1	Computer Connections	4
2	Port Selection	Remote port selector
3	Connector (Computer)	4 x USB Type B Female
4	Connector (Device)	4 x USB Type A Female
5	LED Indicators	Yes
6	Data Rate	5 Gbps or Better

### 13) Chairman Monitor

**Quantity:** 1 No.

Sl. No.	Description	Specification
1	Technology	LED Backlit
2	Type	Bezel less or frame less or slim Bezel
3	Display Technology	IPS/VA
4	Screen Size (Diagonal)	25 to 29 inches

5	Resolution (Pixels)	1920 x 1080 or better
6	Aspect Ratio	16:9
7	Brightness Nits	250 Nits or better
8	Viewing Angle	170 Deg more
9	HDMI port	2 or more
10	Height Adjustable & Tiltable Floor Mount Stand	Yes

14) Ultra short throw Projector with mounting kit

**Quantity:** 2 Nos.

SI. No.	Description	Specification
1	Technology	LCD or DLP
2	Projection Method	Front
3	Native Resolution	1920 x 1080 or better
4	Brightness	5000 lumens or better
5	Throw Ratio	0.25:1 or less
6	Screen Size (Diagonal) supported	115 to 120 inch or better
7	Aspect Ratio	16:9 or better
8	Keystone Correction	Horizontal & Vertical
9	Lens Shift Supported	Yes
10	Type of Light Source	Laser
11	Laser light source (in normal mode)	20000 hours or better
12	No. of HDMI Input Ports	2 or more
13	No. of Audio Output Ports	1 or more
14	No. of LAN Ports	1 or more
15	HD Base T support	1 or more
16	Wireless Remote control	Yes
17	Power Supply	230V, 50Hz Indian standard plug tops
18	Ceiling Mount Kit(As per the site requirement.)	Required

15) Tab tension Motorised projector screen with remote controller

**Quantity:** 2 Nos.

SI. No.	Description	Specification
1	Type	Motorised Tab tension
2	Screen Size (Diagonal)	Minimum: 115 inches Maximum: 120 inches
3	Aspect Ratio	16:9
4	Mounting Type	Ceiling Mount
5	Display Fabric Material	Matte White
6	Gain	1:1
7	Remote Controller	Yes
8	Type of Remote	Wireless
9	Ceiling Mount kit and other Accessories for Installation	Yes.
10	Motorised with tab tension Support	Yes

### 16) HDMI to USB 3.0 Capture Box

**Quantity:** 1 No.

Sl. No.	Description	Specification
1	Type of Device	USB capture device with 1 or more input
2	No. of Input (HDMI)	1 or more
3	No. of Output (USB 3.0)	1 or more
4	USB Compatibility	3.0
5	Video input Resolution	3840 x 2160
6	Audio Input	Stereo Jack
7	Connecting cables and adapter	Yes

### 17) 19 Inches Floor Mount Rack

**Quantity:** 1 No.

Sl. No.	Description	Specification
1	Type of Rack	Portable Rack
2	Usable Height	26 U
3	Usable Width	19 inch
4	Mount Type	Free Standing
5	Front Glass Door	Yes
6	Secure Locks	Yes
7	Support Cable Entry From Top or Bottom	Yes
8	No. of Fan for Heat Dissipation	1 No.
9	No. of Rack Trays	2 or more
10	6 Outlet Power Strip with 6A Universal Socket	3 Nos. Or more
11	Over all width	600 mm
12	Over all depth	600 to 800 mm
13	Removable side panels	Yes
14	Heavy duty caster wheels	Yes 4 nos (minimum 2 nos with brake)
15	Mounting screws and all other accessories required for installation	Yes

### 18) Display Port (Male) to HDMI (Female) Adapter / Adapter Cable

**Quantity:** 5 Nos.

Sl. No.	Description	Specification
1	Input - Display Port (Male)	1 or more
2	Output - HDMI Port (Female)	1 or more
3	Supported Resolution	4K @60Hz (4 : 4 : 4)

### 19) USB Type-C (Male) to HDMI (Female) Adapter / Adapter Cable

**Quantity:** 5 Nos.

Sl. No.	Description	Specification
1	Input	One Type C Male
2	Output	1 HDMI Female
3	Supported Resolution	4K @60Hz (4 : 4 : 4)

## 20) HDBase T Transmitter

**Quantity:** 4 Nos.

Sl. No.	Description	Specification
1	Inputs	1 HDMI: on a female HDMI connector
2	Outputs	1 HDBT: on an RJ-45 female connector
3	IR port on a 3.5 mm connector	1 or more
4	RS-232 port	1 or more
5	Video resolution	4K UHD @60 Hz (4:4:4) upto 100 meters
6	Video (Max data rate)	17 Gbps or better
7	HDCP 2.2 content protection	Yes
8	HD base T 2.0 compliant	Yes
9	PoE Remote Powering for Receiver Unit	Yes
10	Range	100 meter or better
11	Power Adapter Included	Yes

## 21) HDBase T Receiver

**Quantity:** 4 Nos.

Sl. No.	Description	Specification
1	Inputs	1 HDBT: on an RJ-45 female connector
2	Outputs	1 HDMI: on an HDMI connector
3	IR port on a 3.5 mm connector	1 or more
4	RS-232 port	1 or more
5	Video resolution	4K UHD @60 Hz (4:4:4) upto 100 meters
6	Video (Max data rate)	17 Gbps or better
7	HDCP 2.2 content protection	Yes
8	HD base T 2.0 compliant	Yes
9	PoE extension supported	Yes
10	Range	100 meter or better
11	Power Adapter Included	Yes

## 22) HDMI Table Flip box for Laptop

**Quantity:** 1 No.

Sl. No.	Description	Specification
1	Input	1 HDMI: on a female HDMI connector
2	RJ45 port	1 or more
3	3 Pin Indian standard Power socket	Yes

23) Installation, Testing, Commissioning, Training, Documentation & cables, connectors & Accessories

**Quantity:** 1 lot.

<b>S.N.</b>	<b>Description</b>	<b>Specification</b>
1	Installation, testing, commissioning, documentation, programming, training & demonstration of above system with required PVC conduit, speaker wiring termination, testing& demonstration	Yes
2	Supply of Audio cables, Mic Cables, Speaker Cables, Premium certified HDMI cables (4K @60Hz) with premium logo printed on the label and other cables, Connectors, Converters, wall mount brackets, Rack mount brackets and other accessories, at actuals	Yes