

Revised Technical Specifications for Audio video setup:

Annexure A:

Audio & Video setup for Three (03) Individual seminar rooms and Three (03) expandable/portioned seminar rooms:

Sr No in the Annexure-A	Description
1	<p>Projector System: Brightness: 4000 and above (ANSI Lumens) Native Resolution: 1280 x 800 and above Contrast Ratio: 3000000:1 and above Display Color: 1.07 Billion colors Light Source Type: LED Light source life(Hours) with Normal Mode: 20000 to 30000 Lens: F=2.56-2.68, f=22-24.1 mm Projection Offset: 100%+/- 5% Throw Ratio- 1.55- 1.70 Optical Zoom: 1.1X Digital Zoom: 0.8x2.0X Image Size: 30"-300" Throw Distance: 1m-10.98m (100" @3.34m) Audible Noise- Normal: 34dB and Eco-28dB Resolution support: VGA (640x480) to Full HD (1920x1080) INPUT: HDMI 1.4/HDCP 1.4 Audio-in(3.5mm)-1, OUTPUT: Audio-out(3.5mm)-1, 2W speaker USB Type A (5V/2A)</p>
4	<p>55" Led Professional Display (Ceiling Suspended): For 96 Capacity Rooms- 2 each Diagonal Size-55" Type- VA, Resolution- 3840x2160(16:9) Pixel Pitch(mm)- 0.315 x 0.315, Active Display Area(mm)- 1209.6(H) x 680.4(V) Brightness(Typ.)- 350 nit and above Contrast Ratio-4000:1 and above Viewing Angle(H/V)-N/A, Color Gamut- 92% (DCI-P3, CIE 1976) Operation Hour- 16/7, Haze: Glare Speaker type: 10W 2ch HDMI 2.0(2) and above Energy Star-8.0</p>
6	<p>75" Led Professional Display (On trolley): For 100 Capacity Expandable Rooms: Diagonal Size-75" Type- VA, Resolution- 3840x2160(16:9) Pixel Pitch(mm)- 0.42975 x 0.42975, Active Display Area(mm)- 1650.24(H) x 928.26(V) Brightness(Typ.)- 350 nit and above, Contrast Ratio-4000:1 and above Viewing Angle(H/V)-N/A, Color Gamut- 92% (DCI-P3, CIE 1976) Operation Hour- 16/7, Haze: Glare Speaker type: 10W 2ch Video: HDMI 2.0(2) and above Energy Star-8.0</p>

7	<p>Ceiling Speaker: SR1-6 speakers, SR 2 and 3 (96 seating Capacity)- 9 speakers in each room, SR 4,5& 6 - (100 seating capacity)-14 speakers each: Speaker Type: 2-Way Passive, Coaxial Loudspeaker Line Voltage:70V/100V, Line Transformer: Built-in, 2 Power taps, 100V Power: 15W/20W/40W, 70V Power: 10W/15W/20W, Frequency Response: (-10dB) 55Hz18.5kHz, Sensitivity (1w/1m) 89dB Woofer 8" (203 mm), PP cone Tweeter 0.5" (13mm) paintable 66 No. Indian Institute of Technology Hyderabad Kandi, Sangareddy - 502 284, Telangana, India Phone: 040-23016071: Website: www.iith.ac.in, Email: office.stores@iith.ac.in> Page 6 of 55 IP Rate (speaker installed) IP54 Mounting Quick mounting system with 4 screws Grille Perforated steel with acoustic transparent foam inside, paintable</p>
10	<p>Mixing Amplifier: Integrated PA Sound Reinforcement solutions with digital amplifiers in Class-D with processing, zone number from 1 to 4 with 100V outputs, 2 or 4 zones Rated power: 300W and above, Freq. response: 100Hz~16KHz, Power Outputs: 100V for each zone; Overall @ 4-16Ω, THD: ≤1%, S/N Ratio: ≥80dB, N. Channels: 4 Mic Inputs, 2x Aux Line Inputs, 1x FM/DAB+/BT/USB Built- In Player, EQ Controls: Low (± 6dB @ 150Hz) High (± 6dB @ 10kHz), AUX Output :1000mV, AUX 1-2 Inputs: 300mV, MIC 1 Input: 15mV ±3mV, MIC/Line 2/3/4 Inputs: 30mV ±3mV (Mic Position); 300mV (Line Position), EMC input: 100V, BT: 5.0 Version with EDR (10m receiving range, without obstacles), DAB+ :170MHz-240MHz FM Tuner: 88MHz-108MHz USB Audio Format: MP3, WAV, WMA, SBC (FAT32, max. 128GByte) Main Power: AC220-240V, 50Hz/60Hz Off-Load Consumption: 8W Full-load Consumption:420WAuxiliary Power: DC 24V – 10A max. Fuse :F6AL</p>
12	<p>Goose neck mikes:</p>

	<p>Designed for high-quality sound capture in meetings and conferences Ø9.7mm (0.38”) Condenser Capsule Super-Cardioid Polar Pattern 50cm (18" ca and above.) Reference Sound-Receiving Distance Superior off-axis rejection for maximum gain before feedback RFI-shielding technology offers outstanding rejection of radio frequency interference (RFI) 400mm long Gooseneck microphone with bend at bottom 490g heavy base with electronic touch-switch and LED Strong 3-pin Input connector with thread Balanced XLR output connector 3V internal Phantom Power with batteries or power adapter Accepts External Phantom Power from 10V to 48V Foam windscreen included and 5m cable included Programmable On/Off switch-LED Indicator</p>
13	<p>HDMI Extender: Video Input: Interface 1 x HDMI Type A Female (Black) N/A Impedance 100Ω Max. Distance 1.8 m Video Output Interface N/A 1 x HDMI Type A Female (Black) Impedance 100Ω Video Max. Data Rate 10.2Gbps (3.4Gbps per lane) Max. Pixel Clock 340 MHz Compliance HDMI (3D, Deep Color, 4K); HDCP 2.2 Compatible Consumer Electronics Control (CEC) Max. Resolutions /Distance Up to 4K @ 35m and above (Cat 5e/6) / 40m (Cat 6a); 1080p @ 60m and above (Cat 5e/6) / 70m (Cat 6a) *4K supported: 4096 x 2160 / 3840 x 2160 @ 60Hz (4:2:0); 4096 x 2160 / 3840 x 2160 @ 30Hz (4:4:4) Audio Input 1 x HDMI Type A Female (Black) N/A Output N/A 1 x HDMI Type A Female (Black) Power Connectors 1 x DC Jack (Black) with locking Consumption DC5V, 1.85W DC5V, 4.23W Environmental Operating Temperature 0° to 50° C Storage Temperature -20° to 60° C Humidity 40 - 85% RH, Non-Condensing Physical Properties Housing Metal Weight 0.24 kg 0.25 kg</p>

	Dimensions (L x W x H) 12.47 x 8.70 x 3.00 cm 12.47 x 8.70 x 3.00 cm
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Annexure-B

Audio and Video Setup for Five Conference Rooms:

Sr No in the Annexure-B	Description
16	<p>Projector System: Brightness: 4000 and above (ANSI Lumens) Native Resolution: 1280 x 800 and above Contrast Ratio: 3000000:1 and above Display Color: 1.07 Billion colors Light Source Type: LED Light source life(Hours) with Normal Mode: 20000 to 30000 Lens: F=2.56-2.68, f=22-24.1 mm Projection Offset: 100%+/- 5% Throw Ratio- 1.55- 1.70 Optical Zoom: 1.1X Digital Zoom: 0.8x2.0X Image Size: 30"-300" Throw Distance: 1m-10.98m (100" @3.34m) Audible Noise- Normal: 34dB and Eco-28dB Resolution support: VGA (640x480) to Full HD (1920x1080) INPUT: HDMI 1.4/HDCP 1.4 Audio-in(3.5mm)-1, OUTPUT: Audio-out(3.5mm)-1, 2W speaker USB Type A (5V/2A)</p>
17	<p>Ceiling Mount kit for the above mentioned projector: Product Category: Projector Mount Rank: Standard Material: Steel Surface Finish: Powder Coating Color: Matte Black/ Matte White Weight Capacity: 35kg (77lbs) Mounting Range: 130~470mm (5.1"~18.5") Tilt Range: +20°~-20° Swivel Range: +8°~-8° Rotation: +180°~-180° Extension Range: 2FT X 2FT and above Installation: Ceiling Mounted Cable Management: Yes</p>
19	<p>86" Professional Interactive Display: Active Screen Size: 86" Backlight: DLED Active Area: 1893 x 1069 mm Display Ratio: 16:9 Resolution: 3840 x 2160 (4K) Colors: 1.07Billion (10 Bit) Brightness: 500 cd/m² Contrast Ratio: 15000:1 Response Time: 4ms</p>

Viewing Angle: H = 178, V = 178 typ. Display Life Time: ≥ 50000 hours ELECTRICAL PARAMETER:
Working Voltage: AC100-240V Max 6.5A Power Consumption: $< 270W$
Power Consumption (Standby mode): $< 0.5W$
TOUCH TECHNOLOGY:
Touch Solution: Advanced IR
Glass Surface Technology: Anti-Glare+Anti-Fingerprint
+Antimicrobial Tempered Glass
Transparency: $88\% \pm 3$
Touch Surface Hardness (Mohs) : 7H Touch Points: 20 Point
Touch Screen Writing Tools: Passive Pen / Fingers
SPEAKER:
Speaker Position: bottom front Speaker Rated Impedance: 6Ω
Speaker Freq.Response : 180Hz-20KHz when SPL is -10dB
Output S.P.L. : 0dB~ -10dB
Speaker Max.Power Output: 20W x 2
SMART SYSTEM:
SoC Chipset: Amlogic 311D2
CPU: A73*4 + A53*4 (4 Core + 4 Core GPU: G52*8 (8 Core)
RAM: 4GB DDR4
Flash Memory: 32GB
Built in Extra Memory: Standard 32GB / can be upgraded
Android Version: Android 11
Multimedia File Formats Support: Image: JPEG, BMP, PNG,
Video: MPEG1, MPEG2, MPEG4, SorensonH.263, H.263,
H.264, HEVC/H.265, MVC, AVS, AVS+, WMV3, VC1,
Motion JPEG, VP8,
VP9, RV30/RV40 , Audio: MPEG1/2
@LAYER1; @LAYER2; @LAYER3, EAC3, ACC-LC,
HEAAC, VORBIS, LPCM, IMA-ADPCM, MS-ADPCM, G711
A/MU-LAW, LBR(COOK), FLAC
FRONT I/O PORTS USB Type-C (PD 65W):1 HDMI IN 2.0:1
USB Type-B (Touch): 1 USB 3.0 Type-A:1
Microphone In: 1 REAR I/O PORTS HDMI IN 2.0: 2
DisplayPort 1.2 : 1 USB Type-B (Touch): 3
USB 3.0 Type-C (no PD): 1
USB 3.0 Type-A: 2
USB 3.0 Type-A to Android: 1
HDMI OUT 2.0: 1
RS232: 1
RJ45 (Gigabit): IN*1 & OUT*1 OPS Slot: 1
SPDIF: 1
Audio Line out: 1 WIFI module slot: 1
(wifi module is standard)
WIFI MODULE
Parameters Built-in Wi-Fi 6 module, with a frequency range of
2.4/5 GHz
CAMERA MODULE- **Optional**
Camera Resolution: 4K@ 30 Hz /UHD Field of View: 120°
FOV Lenses Resolution: 8M
Camera Tile Range: 15°

<p>24</p>	<p>USB Extender: Supports USB 3.1 Gen1 Specification (5 Gbps) Ultra slim design and unique locker head design Daisy-chainable, maximum distance of up to 50 m Additional power adapter included Connectors: USB Port 1 x USB 3.1 Gen1 Type A Male Downstream 1 x USB 3.1 Gen1 Type A Female USB Specification USB 3.1 Gen1 / 2.0 / 1.1 for Super / High / Full or Low speed Cable Length 10 m Data Rate Up to 5 Gbps Environmental Operating Temperature 0–40°C Storage Temperature -20–60°C Humidity 0-80% RH, Non-condensing Physical Properties Housing Plastic Weight 0.76 kg (1.67 lb) Dimensions (L x W x H) 8.19 x 2.22 x 1.75 cm (3.22x 0.87 x 0.69 in.)</p>
<p>25</p>	<p>4-Port True 4k HDMI Switcher with Dual Output: Allows up to 4 HDMI A/V sources to be connected to 2 HDMI displays Superior video quality – up to 4096 x 2160 / 3840 x 2160 @ 60Hz (4:4:4); HDR supported HDMI 2.0 (3D, Audio Return Channel, Deep Colour); HDCP 2.2 compliant Supports Auto Switch – automatically switches to a newly plugged-in source Audio Return Channel (ARC) function – connects an HDMI cable to the ARC port to send audio from your source device to your audio/video receiver OSD for system configuration settings and information display Switching between HDMI input sources via front panel pushbuttons, IR remote control EDID Expert™ – selects optimum EDID settings for smooth power-up, high quality display, and use of the best resolution across different screens Built-in bi-directional port for high-end system control HDMI audio can be extracted to stereo audio and digital audio (optical/coaxial) outputs. Supports 5.1 channel audio output Supports Consumer Electronic Control (CEC) Rack mountable</p>
<p>26</p>	<p>USB Camera: Camera Type: 1/2.7" CMOS H/V Resolution: 1920 x 1080 Output: 1080p30/25, 720p30/25, 960x540p30/25, 640x360p30 Zoom: 12x optical Focus: Auto</p>

	<p>Field of View: 72.5°, Rotation-170° Horizontal and Vertical Field of View :60° Min. Illumination: 0.5Lux @ (F1.7, AGC ON) Exposure: Auto-iris(AGC) SNR: ≥ 55dB Pan range: +/- 170° Tilt range: +90/-30° I/O: USB 2.0 IR Detectors: ✓ Power consumption: 12v @ 1.5A power Dimensions (W x H x D): 141.5 x 175.9 x 151.8 mm IR Remote Control to be supplied day one. Should support all types of Unified Communication Platforms Hardware Power Consumption: 12v @ 1.5A power Climate natural certified</p>
27	<p>Ceiling Speaker: Speaker Type: 2-Way Passive, Coaxial Loudspeaker Line Voltage:70V/100V, Line Transformer: Built-in, 2 Power taps, 100V Power: 15W/20W/40W, 70V Power: 10W/15W/20W, Frequency Response: (-10dB) 55Hz18.5kHz, Sensitivity (1w/1m) 89dB Woofer 8” (203 mm), PP cone Tweeter 0.5” (13mm) paintable 66 No. Indian Institute of Technology Hyderabad Kandi, Sangareddy - 502 284, Telangana, India Phone: 040-23016071: Website: www.iith.ac.in, Email: office.stores@iith.ac.in> Page 6 of 55 IP Rate (speaker installed) IP54 Mounting Quick mounting system with 4 screws Grille Perforated steel with acoustic transparent foam inside, paintable</p>
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	<p>obstacles), DAB+ :170MHz-240MHz FM Tuner: 88MHz-108MHz USB Audio Format: MP3, WAV, WMA, SBC (FAT32, max. 128GByte) Main Power: AC220-240V, 50Hz/60Hz Off-Load Consumption: 8W Full-load Consumption:420W Auxilia y Power: DC 24V – 10A max. Fuse :F6AL</p>
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31	<p>Audio Conferencing Phone: USER INTERFACE FEATURES Gesture-based, multi-touch-capable Capacitive touch Screen 5-inch color LCD (720 x 1280 pixel), 9:16 aspect ratio On-screen virtual keyboard 1 USB 2.0 Type A-compliant port USB battery charging BC1.2 compliant (requires full Class 4 power input on LAN IN for Operation) 1x USB 2.0 Micro-B device port for use as USB audio device Integrated Bluetooth 4.0 and NFC 3 multi-coloured capacitive-touch mute indicators AUDIO FEATURES: 3 cardioid microphones Loudspeaker - Frequency: 100-22,000 Hz - Volume: 92 dB at 0.5-m peak volume 6 m/20 ft microphone pickup range Supported codecs: - G.711 (A-law and µ-law) - G.719 - G.722, G722.1, G722.1C - G.729AB - iLBC (3.33Kbps and 15.2Kbps)</p>

- Opus (8Kbps - 24Kbps)
- SILK
- Acoustic Clarity technology provides full-duplex conversations, acoustic echo cancellation and background noise suppression–Type 1 compliant (IEEE 1329 full duplex)
- Noise Block Voice activity detection
- Comfort noise generation
- DTMF tone generation (RFC 2833 and inband)
- Bluetooth device pairing for wideband speech and multimedia streaming (HFP/AD2P)
- Low-delay audio packet transmission
- Adaptive jitter buffers
- Packet loss concealment
- CALL HANDLING FEATURES:
- Up to three lines (max. one Skype for Business and Microsoft Teams)
- Shared call/bridged line appearance
- Distinctive incoming call treatment/call waiting
- Call timer and call waiting
- Call transfer, hold, divert (forward), pickup
- Called, calling, connected-party information
- One-touch speed dial and meeting join
- Local five-way audio conferencing
- Daisy-chain up to four
- Do-not-disturb function
- Local configurable digit map/dial plan
- Corporate directory access using LDAP
- Visual conference management
- NETWORK AND PROVISIONING:
- Open SIP
- Skype for Business certified1
- Microsoft Teams certified1
- Zoom certified
- IETF SIP (RFC 3261 and companion RFCs)
- Two-port gigabit Ethernet switch
- 10/100/1000Base-TX across LAN and 2nd port
- 2nd port supports IEEE 802.3af PSE
- Wi-Fi network connectivity
- 2.4–2.4835 GHz (802.11b, 802.11g, 802.11n HT-20)
- 5.15–5.825 GHz (802.11a, 802.11n, HT-20, 802.11n HT-40)
- Manual or dynamic host configuration protocol (DHCP) network setup
- Time and date synchronization using SNTP
- FTP/TFTP/HTTP/HTTPS server-based central provisioning
- Real Presence Resource Manager (v. 10.1 or

	<p>above) based provisioning Zero Touch Provisioning</p> <ul style="list-style-type: none"> • Provisioning and call server <p>redundancy support</p> <ul style="list-style-type: none"> - Real Presence Resource Manager (v 10.1 or above) based provisioning - PDMS-E, PDMS-SP • QoS support - IEEE 802.1p/Q tagging (VLAN), layer 3 TOS, and DSCP - WMM (Wi-Fi multimedia) • VLAN – CDP, DHCP VLAN discovery • LLDP-MED for VLAN discovery <p>SECURITY</p> <ul style="list-style-type: none"> • FIPS 140-2 compliant cryptographic module • 802.1X authentication and EAPOL • Media encryption via SRTP • Transport layer security (TLS) v 1.2 • Encrypted configuration files • Digest authentication • Password login • Support for URL syntax with password for boot server address • HTTPS secure provisioning • Support for signed software executables • Wi-Fi encryption: WEP, WPA-Personal, WPA2-Personal, WPA2-Enterprise with 802.1X (EAP-TLS, PEAP-MSCHAPv2) <p>POWER</p> <ul style="list-style-type: none"> • LAN IN: Built-in auto-sensing IEEE 802.3at. PoE Device (Class 4) (requires full Class 4 power input on LAN IN for operation). Backward compatibility with IEEE 802.3af • LAN OUT: Built-in auto-sensing IEEE 802.3af power sourcing equipment (requires full Class 4 power input on LAN IN for operation) <p>Touch-sensitive controls End Call Volume up and down Mute / Unmute Microphone 3 illuminated mute buttons</p>
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Annexure-C:

Sr No in the Annexure-C	Description
34	Bulk Cables: Cables & connectors of very good quality (as required for the installation of all above mentioned items). Patch Chords, VGA to HDMI Active Extender. Must specify the Brand name. If any challenges with the resolution, replacement to be done free of cost.

Annexure-D:

Eligibility Criteria:

Sr No:3: Warranty: Minimum 12-month onsite warranty from the date of installation.