



BID SUPPLEMENT

Date: August 24, 2023

Title: IB-2023-08-08 SUPPLY, DELIVERY & INSTALLATION FOR SMART CLASSROOM & AUDIO-VISUAL ROOM EQUIPMENT (ICT)

Reference No.: 10011501

SUPPLEMENTAL/BID BULLETIN No. 5

Please be advised of the following Clarifications/Amendments to the Bidding Schedules/Activities. This shall form an integral part of the Bid Documents.

Updated: Terms of Reference

REFERENCE	AMENDMENT/CHANGE/CLARIFICATION
<p data-bbox="451 602 824 630" style="text-align: center;">TERMS OF REFERENCE</p> <p data-bbox="181 675 1141 776" style="text-align: center;">INFRASTRUCTURE AND SMART CAMPUS DEVELOPMENT, OPERATIONALIZATION OF FACE-TO-FACE CLASSES AND UPGRADING/PROCUREMENT OF EQUIPMENT</p> <p data-bbox="109 894 470 922">1. Technical Specifications</p> <p data-bbox="154 932 463 959">1.1. Smart Classrooms</p> <p data-bbox="201 969 575 997">1.1.1. General Requirement</p> <p data-bbox="251 1006 1156 1107">1.1.1.1. The setup will be designed to capture the teacher’s gestures and audio clearly and the student interactions both in-classroom and online participants.</p> <p data-bbox="251 1117 1156 1252">1.1.1.2. Each classroom has its own independent setup of an all-in-one conferencing board and audio setup. These three (3) classrooms can be merged to form a single big conference room with a mirrored display and unified audio system.</p> <p data-bbox="201 1261 712 1289">1.1.2. All-in-One Collaboration Board</p> <p data-bbox="269 1299 779 1326">The All-in-one terminal should include:</p> <p data-bbox="251 1336 620 1364">1.1.2.1. Interactive Panel;</p> <p data-bbox="251 1373 712 1401">1.1.2.2. Video conference codec;</p> <p data-bbox="251 1411 613 1438">1.1.2.3. Built-in Speaker;</p> <p data-bbox="251 1448 662 1476">1.1.2.4. Built-in microphone;</p> <p data-bbox="251 1485 600 1513">1.1.2.5. Built-in camera.</p> <p data-bbox="251 1523 558 1550">1.1.2.6. OPS module</p>	<p data-bbox="1492 566 2078 594" style="text-align: center;">AMENDMENT/CHANGE/CLARIFICATION</p> <p data-bbox="1602 602 1976 630" style="text-align: center;">TERMS OF REFERENCE</p> <p data-bbox="1360 675 2270 776" style="text-align: center;">INFRASTRUCTURE AND SMART CAMPUS DEVELOPMENT, OPERATIONALIZATION OF FACE-TO-FACE CLASSES AND UPGRADING/PROCUREMENT OF EQUIPMENT</p> <p data-bbox="1427 786 2207 850" style="text-align: center;">(Audio and Video Equipment for the Smart Classroom at the Engineering Building, SLS and Old Library AV Hall)</p> <p data-bbox="1198 894 1559 922">1. Technical Specifications</p> <p data-bbox="1246 932 1452 959">1.1. Classrooms</p> <p data-bbox="1293 969 1667 997">1.1.1. General Requirement</p> <p data-bbox="1343 1006 2362 1107">1.1.1.1. The setup will be designed to capture the teacher’s gestures and audio clearly and the student interactions with both classroom and online participants.</p> <p data-bbox="1343 1117 2362 1252">1.1.1.2. Each classroom has its own independent setup of an all-in-one conferencing board and audio setup. These classrooms (3) can be merged to form a single big conference room with a mirrored display and unified audio system.</p> <p data-bbox="1293 1261 1804 1289">1.1.2. All-in-One Collaboration Board</p> <p data-bbox="1360 1299 1871 1326">The All-in-one terminal should include:</p> <p data-bbox="1343 1336 1712 1364">1.1.2.1. Interactive Panel;</p> <p data-bbox="1343 1373 1804 1401">1.1.2.2. Video conference codec;</p> <p data-bbox="1343 1411 1712 1438">1.1.2.3. Built-in Speaker;</p> <p data-bbox="1343 1448 1754 1476">1.1.2.4. Built-in microphone;</p> <p data-bbox="1343 1485 1697 1513">1.1.2.5. Built-in camera.</p> <p data-bbox="1343 1523 1649 1550">1.1.2.6. OPS module</p>

System configuration:

- 1.1.2.7. 8-core CPU, 8 GB RAM, 64 GB Flash
- 1.1.2.8. With an OPS module/computer with: i7-10700, DDR4 16 GB, 512 GB SSD, Windows10 IOT Enterprise SAC
- Features
- 1.1.2.9. Supports anti-glare
- 1.1.2.10. Automatically adjusts screen brightness based on light sensing.
- 1.1.2.11. Optical anti-blue light: protects eyes and doesn't change color.
- 1.1.2.12. Screen response time: 8ms
- 1.1.2.13. Touch accuracy: ± 1 mm
- 1.1.2.14. Supports 20 touchpoints
- 1.1.2.15. 4K built-in camera
- 1.1.2.16. A built-in privacy cover to physically close the camera
- 1.1.2.17. Auto-framing: automatically adjusts the camera based on the location of the participants. The camera displays all participants in a panoramic view and ensures that the participants are displayed in the center.
- 1.1.2.18. Speaker tracking, automatically switch to the close-up picture of speaker without manual intervention
- 1.1.2.19. At least 6 built-in microphone arrays
- 1.1.2.20. The microphone sound pickup radius at least 12 meters, and the sound pickup angle: 180°.
- 1.1.2.21. Acoustic echo cancellation (AEC), automatic gain control (AGC), automatic noise reduction (ANR)
- 1.1.2.22. Can add external microphone
- 1.1.2.23. Two built-in speakers, frequency response range:100Hz-20KHz, total power not less than 40 W
- 1.1.2.24. Video In: 1 x HDMI 2.0 (4K60)
- 1.1.2.25. Video Out: 1 x HDMI 2.0 (4K60)
- 1.1.2.26. Audio In: 1 x 3.5mm
- 1.1.2.27. Audio Out: 1 x 3.5mm
- 1.1.2.28. 1 x Omni-directional microphone port, support the cascading of two microphones.
- 1.1.2.29. 3 x USB Type-A 3.0, support USB flash drive, mouse, keyboard, microphone, speaker, remote control and wireless dongle for projection.
- 1.1.2.30. 1 x USB Type-C, support USB flash device, wireless dongle for projection.
- 1.1.2.31. 1 x 10/100/1000M RJ45 port

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- 1.1.2.12. Screen response time: 8ms
- 1.1.2.13. Touch accuracy: ± 1 mm
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- 1.1.2.15. 4K built-in camera
- 1.1.2.16. A built-in privacy cover to physically close the camera
- 1.1.2.17. Auto-framing: automatically adjusts the camera based on the location of the participants. The camera displays all participants in a panoramic view and ensures that the participants are displayed in the center.
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- 1.1.2.28. 1 x Omni-directional microphone port, support the cascading of two microphones.
- 1.1.2.29. 3 x USB Type-A 3.0, support USB flash drive, mouse, keyboard, microphone, speaker, remote control and wireless dongle for projection.
- 1.1.2.30. 1 x USB Type-C, support USB flash device, wireless dongle for projection.
- 1.1.2.31. 1 x 10/100/1000M RJ45 port
- 1.1.2.32. Wi-Fi 5 and Wi-Fi 6, IEEE802.11a/b/g/n/ac/ax network protocol
- 1.1.2.33. Remote control that controls the volume, speaker on/off, microphone mute/unmute, camera open/close, previous/next page
- 1.1.2.34. Writing latency of no more than 16ms

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- 1.1.2.34. Writing latency of no more than 16ms
- 1.1.2.35. The built-in whiteboard supports handwriting, drawing, erasing, marking, saving, zooming, and locking the whiteboard. The background color can be changed.
- 1.1.2.36. The whiteboard supports page turning. A maximum of 100 pages are supported
- 1.1.2.37. Selectable pen type: pencil, pen, and highlighter. Pen color: color palette.
- 1.1.2.38. Full-screen annotation: You can take a screenshot of any screen to enter the whiteboard annotation
- 1.1.2.39. The contents of the whiteboard can be saved locally and edited when you open it for the second time, saved in an external USB flash memory, sent to an email.
- 1.1.2.40. When writing on the electronic whiteboard, the hand-drawn graphics can be recognized as standard geometric figures, and the hand-written text can be recognized as standard printed text.
- 1.1.2.41. Wired projection through HDMI cable. Projection resolution support up to 1080p60fps and 4K30fps.
- 1.1.2.42. Wired projection through USB Type-C cable. Projection resolution support up to 1080p60fps and 4K30fps. When PC is projected to the device, the device can control the PC reversely without extra cables.
- 1.1.2.43. Wireless projection by entering the projection code on the mobile phone and PC. Projection resolution support up to 1080p60fps and 4K15fps. When PC is projected to the device, the device can control the PC reversely.
- 1.1.2.44. Wi-Fi Direct projection. Users do not need to configure a Wi-Fi router or change the network of their mobile phones or PCs during screen projection. Projection resolution: up to 1080P60fps and 4K15fps. When PC is projected to the device, the device can control the PC reversely.
- 1.1.2.45. DLNA projection, during projection, user can use mobile phone to perform other tasks.
- 1.1.2.46. Allows users to use the same projection APP to project screens to OPS Windows.
- 1.1.2.47. Supports third-party video conference APP

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- 1.1.2.46. Allows users to use the same projection APP to project screens to OPS Windows.
- 1.1.2.47. Supports third-party video conference APP
- 1.1.2.48. The camera, microphone and speaker can be used for third-party video conference APP.
- 1.1.2.49. The camera auto-framing and voice tracking features can be used for third-party video conference APP
- 1.1.2.50. Android apps can be installed.
- 1.1.2.51. Support APP store dedicated to large screens device.

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- 1.1.2.50. Android apps can be installed.
- 1.1.2.51. Support APP store dedicated to large screens device.
- 1.1.2.52. Supports APIs, third-party applications can perform registration, conference call, conference control, configuration query, and address book query based on the APIs.
- 1.1.2.53. Multi-window: The desktop can be divided into two windows that display two applications. User can change the size of the two windows by dragging the windows.
- 1.1.2.54. Supports BYOM, device hardware capabilities such as microphones, cameras, speakers, and touchscreens can be easily used as peripherals for 3rd party conferences on PC, by using Type-C cables, projection app, or wireless dongle
- 1.1.2.55. Welcome page without OPS module, the welcome page should contain text and pictures. The font of the text can be edited and the pictures can be customized.
- 1.1.2.56. Users can quickly customize applications on the home page. Common applications can be placed on the home page for quick search. At least six applications can be configured on the home page.
- 1.1.2.57. Supports dynamic wallpapers and static wallpapers. Wallpapers can be changed and imported.
- 1.1.2.58. Clone screen content to another screen via HDMI cable
- 1.1.2.59. Supports the OTA(over the air) technology.
- 1.1.2.60. Supports password complexity settings
- 1.1.3. Tracking Cameras
 - 1.1.3.1. Ultra 4K camera
 - 1.1.3.2. 1/2.5", CMOS, Effective Pixel: 8.51M
 - 1.1.3.3. 8x digital zoom
 - 1.1.3.4. H.265 compression
 - 1.1.3.5. Built-in advanced image recognition and tracking algorithm; can easily realize fluent and continuous tracking.
 - 1.1.3.6. Autofocus non-distortion lens, view angle 46° / 84° / 120° for options (120° don't support AF), a small lens with big view, supporting electronic PTZ
 - 1.1.3.7. Ultra-high noise ratio of the new CMOS image sensor can effectively reduce the low noise in the case of image noise, while the application of 2D and 3D noise reduction algorithm,

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 - 1.1.3.4. H.265 compression
 - 1.1.3.5. Built-in advanced image recognition and tracking algorithm; can easily realize fluent and continuous tracking.
 - 1.1.3.6. Autofocus non-distortion lens, view angle 46° / 84° / 120° for options (120° don't support AF), a small lens with big view, supporting electronic PTZ
 - 1.1.3.7. Ultra-high noise ratio of the new CMOS image sensor can effectively reduce the low noise in the case of image noise, while the application of 2D and 3D noise reduction algorithm, significantly reducing the image noise, even under low light conditions, still keep the picture clean and clear, the image signal to noise ratio up to 55dB or more
 - 1.1.3.8. Supports PoE
 - 1.1.3.9. Interleaving mode: achieve single camera and single SDI interface to simultaneously output panoramic and close-up signals.
 - 1.1.3.10. Wall mount bracket of box camera
- 1.1.4. Digital Board

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- 1.1.3.10. Wall mount bracket of box camera
- 1.1.4. Digital Board
 - 1.1.4.1. Integrated to the all-in-one conferencing board; installed on both sides
 - 1.1.4.2. Green color
 - 1.1.4.3. With an integrated document capture camera
- 1.1.5. Audio System
 - 1.1.5.1. 3 x condenser hanging microphones per classroom installed on the ceiling
 - 1.1.5.1.1. Cardioid pattern
 - 1.1.5.1.2. 70 dB SNR
 - 1.1.5.2. Central mixing console at the center classroom and a power amplifier
 - 1.1.5.2.1. Mixing console: 16-channel mixing console, 16-line inputs, 1-knob compressor, rack-mountable
 - 1.1.5.2.2. Power amplifier: 60 watts rated power, 2U rack mount, 4-16 ohms speaker output
 - 1.1.5.3. Small mixer for the side classrooms: integrated USB, reverb, echo and delay function, 4 mic inputs
 - 1.1.5.4. 2 x 35 watts wall speakers per classroom
 - 1.1.5.5. Supply and termination of audio cables
 - 1.1.5.6. With HDMI splitter and cabling
- 1.1.6. Compact Switch
 - 1.1.6.1. Enterprise compact network switch, 8 ports GE copper, 2 x GE copper and 2 x 10GE SFP uplink ports
 - 1.1.6.2. PoE+, 240 watts power budget
 - 1.1.6.3. Fanless
 - 1.1.6.4. Up to 32,000 MAC address table
 - 1.1.6.5. With rack-mount kit
- 1.1.7. Access Point
 - 1.1.7.1. Enterprise access point compatible with existing WLAN controller
 - 1.1.7.2. 802.11ax AP; dual band
 - 1.1.7.3. MU-MIMO

- 1.1.4.1. Integrated to the all-in-one conferencing board; installed on both sides
- 1.1.4.2. Green color
- 1.1.4.3. With an integrated document capture camera
- 1.1.5. Audio System
 - 1.1.5.1. 3 x condenser hanging microphones per classroom installed on the ceiling
 - 1.1.5.1.1. Cardioid pattern
 - 1.1.5.1.2. 70 dB SNR
 - 1.1.5.2. Central mixing console at the center classroom and a power amplifier
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- 1.1.7. Access Point
 - 1.1.7.1. Enterprise access point compatible with existing WLAN controller
 - 1.1.7.2. 802.11ax AP; dual band
 - 1.1.7.3. MU-MIMO
 - 1.1.7.4. OFDMA
 - 1.1.7.5. BSS coloring
- 1.1.8. LAN Cabling
 - 1.1.8.1. 4 x Cat 6 copper cabling node per classroom
 - 1.1.8.2. With 3 feet closed-type cabinet per classroom
 - 1.1.8.3. To include cabinet electrical power tapping
 - 1.1.8.4. Proper installation method with patch panel and labeling
- 1.1.9. Rack-mount UPS
 - 1.1.9.1. 1000VA UPS line interactive
 - 1.1.9.2. Rack-mountable

- 1.1.7.4. OFDMA
- 1.1.7.5. BSS coloring
- 1.1.8. LAN Cabling
 - 1.1.8.1. 4 x Cat 6 copper cabling node per classroom
 - 1.1.8.2. With 3 feet closed-type cabinet per classroom
 - 1.1.8.3. To include cabinet electrical power tapping
 - 1.1.8.4. Proper installation method with patch panel and labeling
- 1.1.9. Rack-mount UPS
 - 1.1.9.1. 1000VA UPS line interactive
 - 1.1.9.2. Rack-mountable

1.2. SLS AVR

- 1.2.1. General Requirement
 - 1.2.1.1. Shall use LED wall for the big display
 - 1.2.1.2. LED wall shall be integrated to the all-in-one conferencing board
- 1.2.2. Tracking Cameras
 - 1.2.2.1. Ultra 4K camera
 - 1.2.2.2. 1/2.5", CMOS, Effective Pixel: 8.51M
 - 1.2.2.3. 8x digital zoom
 - 1.2.2.4. H.265 compression
 - 1.2.2.5. Built-in advanced image recognition and tracking algorithm; can easily realize fluent and continuous tracking.
 - 1.2.2.6. Autofocus non-distortion lens, view angle 46° / 84° / 120° for options (120° don't support AF), a small lens with big view, supporting electronic PTZ
 - 1.2.2.7. Ultra-high noise ratio of the new CMOS image sensor can effectively reduce the low noise in the case of image noise, while the application of 2D and 3D noise reduction algorithm, significantly reducing the image noise, even under low light conditions, still keep the picture clean and clear, the image signal to noise ratio up to 55dB or more
 - 1.2.2.8. Supports PoE
 - 1.2.2.9. Interleaving mode: achieve single camera and single SDI interface to simultaneously output panoramic and close-up signals.
 - 1.2.2.10. Wall mount bracket of box camera
- 1.2.3. LED Wall
 - 1.2.3.1. Indoor fixed LED video wall
 - 1.2.3.2. P3.91 pitch
 - 1.2.3.3. 4 x 2.5 meter size

1.2. SLS AVR

- 1.2.1. General Requirement
 - 1.2.1.1. Shall use LED wall for the big display
- 1.2.2. LED Wall
 - 1.2.2.1. Indoor fixed LED video wall
 - 1.2.2.2. P3.91 pitch; 1026 x 641 dots display resolution
 - 1.2.2.3. 4 x 2.5 meter size
 - 1.2.2.4. Viewing angle: 140 degrees horizontal and vertical
 - 1.2.2.5. Frame rate: 60 Hz
 - 1.2.2.6. Refresh rate: at least 3840 Hz
 - 1.2.2.7. Brightness: 1000 nits
 - 1.2.2.8. Front access maintenance
 - 1.2.2.9. Die-cast aluminum cabinet
 - 1.2.2.10. IP43 protection grade
 - 1.2.2.11. Shall include video controller, signal cables
 - 1.2.2.12. Shall include installation and commissioning.
 - 1.2.2.13. Shall include power supply provision
 - 1.2.2.14. Shall include HDMI outlet near the lectern; the outlet shall be connected to the video controller
- 1.2.3. Audio System
 - 1.2.3.1. 7 x condenser hanging microphones installed on the ceiling
 - 1.2.3.1.1. Cardioid pattern
 - 1.2.3.1.2. 70 dB SNR
 - 1.2.3.2. Central mixing console at the center classroom and a power amplifier
 - 1.2.3.2.1. Mixing console: 16-channel mixing console, 16-line inputs, 1-knob compressor, rack-mountable
 - 1.2.3.2.2. Power amplifier: 120 watts rated power, 2U rack mount, 4-16 ohms speaker output
 - 1.2.3.3. 4 x 35 watts wall speakers
 - 1.2.3.4. Supply and termination of audio cables
- 1.2.4. Compact Switch
 - 1.2.4.1. Enterprise compact network switch, 8 ports GE copper, 2 x GE copper and 2 x 10GE SFP uplink ports
 - 1.2.4.2. PoE+, 240 watts power budget
 - 1.2.4.3. Fanless
 - 1.2.4.4. Up to 32,000 MAC address table
 - 1.2.4.5. With rack-mount kit
- 1.2.5. Access Point
 - 1.2.5.1. Enterprise access point compatible with existing WLAN controller
 - 1.2.5.2. 802.11ax AP; dual band
 - 1.2.5.3. MU-MIMO

- 1.2.3.4. Shall include video controller, signal cables
- 1.2.3.5. Shall include installation and commissioning.
- 1.2.3.6. Shall include power supply provision
- 1.2.4. Audio System
 - 1.2.4.1. 7 x condenser hanging microphones installed on the ceiling
 - 1.2.4.1.1. Cardioid pattern
 - 1.2.4.1.2. 70 dB SNR
 - 1.2.4.2. Central mixing console at the center classroom and a power amplifier
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 - 1.2.4.3. 4 x 35 watts wall speakers
 - 1.2.4.4. Supply and termination of audio cables
- 1.2.5. Compact Switch
 - 1.2.5.1. Enterprise compact network switch, 8 ports GE copper, 2 x GE copper and 2 x 10GE SFP uplink ports
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- 1.2.6. Access Point
 - 1.2.6.1. Enterprise access point compatible with existing WLAN controller
 - 1.2.6.2. 802.11ax AP; dual band
 - 1.2.6.3. MU-MIMO
 - 1.2.6.4. OFDMA
 - 1.2.6.5. BSS coloring
- 1.2.7. LAN Cabling
 - 1.2.7.1. 5 x Cat 6 copper cabling node
 - 1.2.7.2. With 4 feet closed-type cabinet
 - 1.2.7.3. To include cabinet electrical power tapping
 - 1.2.7.4. Proper installation method with patch panel and labeling
- 1.2.8. Rack-mount UPS
 - 1.2.8.1. 1000VA UPS line interactive
 - 1.2.8.2. Rack-mountable

1.3. OLD LIBRARY AVR

- 1.3.1. General Requirement
 - 1.3.1.1. Shall use LED wall for the big display

- 1.2.5.4. OFDMA
- 1.2.5.5. BSS coloring
- 1.2.6. LAN Cabling
 - 1.2.6.1. 5 x Cat 6 copper cabling node
 - 1.2.6.2. With 4 feet closed-type cabinet
 - 1.2.6.3. To include cabinet electrical power tapping
 - 1.2.6.4. Proper installation method with patch panel and labeling
- 1.2.7. Rack-mount UPS
 - 1.2.7.1. 1000VA UPS line interactive
 - 1.2.7.2. Rack-mountable

1.3. Graduate School AVR

- 1.3.1. General Requirement
 - 1.3.1.1. Shall use LED wall for the big display
- 1.3.2. LED Wall
 - 1.3.2.1. Indoor fixed LED video wall
 - 1.3.2.2. P3.91 pitch; 1026 x 641 dots display resolution
 - 1.3.2.3. 4 x 2.5 meter size
 - 1.3.2.4. Viewing angle: 140 degrees horizontal and vertical
 - 1.3.2.5. Frame rate: 60 Hz
 - 1.3.2.6. Refresh rate: at least 3840 Hz
 - 1.3.2.7. Brightness: 1000 nits
 - 1.3.2.8. Front access maintenance
 - 1.3.2.9. Die-cast aluminum cabinet
 - 1.3.2.10. IP43 protection grade
 - 1.3.2.11. Shall include video controller, signal cables
 - 1.3.2.12. Shall include installation and commissioning.
 - 1.3.2.13. Shall include power supply provision
 - 1.3.2.14. Shall include HDMI outlet near the lectern; the outlet shall be connected to the video controller
- 1.3.3. Audio System
 - 1.3.3.1. 8 x condenser hanging microphones installed on the ceiling
 - 1.3.3.1.1. Cardioid pattern
 - 1.3.3.1.2. 70 dB SNR
 - 1.3.3.2. Central mixing console at the center classroom and a power amplifier
 - 1.3.3.2.1. Mixing console: 16-channel mixing console, 16-line inputs, 1-knob compressor, rack-mountable
 - 1.3.3.2.2. Power amplifier: 120 watts rated power, 2U rack mount, 4-16 ohms speaker output
 - 1.3.3.3. 4 x 35 watts wall speakers
 - 1.3.3.4. Supply and termination of audio cables

<ul style="list-style-type: none"> 1.3.1.2. LED wall shall be integrated to the all-in-one conferencing board 1.3.2. Tracking Cameras <ul style="list-style-type: none"> 1.3.2.1. Ultra 4K camera 1.3.2.2. 1/2.5", CMOS, Effective Pixel: 8.51M 1.3.2.3. 8x digital zoom 1.3.2.4. H.265 compression 1.3.2.5. Built-in advanced image recognition and tracking algorithm; can easily realize fluent and continuous tracking. 1.3.2.6. Autofocus non-distortion lens, view angle 46° / 84° / 120° for options (120° don't support AF), a small lens with big view, supporting electronic PTZ 1.3.2.7. Ultra-high noise ratio of the new CMOS image sensor can effectively reduce the low noise in the case of image noise, while the application of 2D and 3D noise reduction algorithm, significantly reducing the image noise, even under low light conditions, still keep the picture clean and clear, the image signal to noise ratio up to 55dB or more 1.3.2.8. Supports PoE 1.3.2.9. Interleaving mode: achieve single camera and single SDI interface to simultaneously output panoramic and close-up signals. 1.3.2.10. Wall mount bracket of box camera 1.3.3. LED Wall <ul style="list-style-type: none"> 1.3.3.1. Indoor fixed LED video wall 1.3.3.2. P3.91 pitch 1.3.3.3. 4 x 2.5 meter size 1.3.3.4. Shall include video controller, signal cables 1.3.3.5. Shall include installation and commissioning. 1.3.3.6. Shall include power supply provision 1.3.4. Audio System <ul style="list-style-type: none"> 1.3.4.1. 8 x condenser hanging microphones installed on the ceiling <ul style="list-style-type: none"> 1.3.4.1.1. Cardioid pattern 1.3.4.1.2. 70 dB SNR 1.3.4.2. Central mixing console at the center classroom and a power amplifier <ul style="list-style-type: none"> 1.3.4.2.1. Mixing console: 16-channel mixing console, 16-line inputs, 1-knob compressor, rack-mountable 1.3.4.2.2. Power amplifier: 120 watts rated power, 2U rack mount, 4-16 ohms speaker output 1.3.4.3. 4 x 35 watts wall speakers 	<ul style="list-style-type: none"> 1.3.4. Compact Switch <ul style="list-style-type: none"> 1.3.4.1. Enterprise compact network switch, 8 ports GE copper, 2 x GE copper and 2 x 10GE SFP uplink ports 1.3.4.2. PoE+, 240 watts power budget 1.3.4.3. Fanless 1.3.4.4. Up to 32,000 MAC address table 1.3.4.5. With rack-mount kit 1.3.5. Access Point <ul style="list-style-type: none"> 1.3.5.1. Enterprise access point compatible with existing WLAN controller 1.3.5.2. 802.11ax AP; dual band 1.3.5.3. MU-MIMO 1.3.5.4. OFDMA 1.3.5.5. BSS coloring 1.3.6. LAN Cabling <ul style="list-style-type: none"> 1.3.6.1. 5 x Cat 6 copper cabling node 1.3.6.2. With 4 feet closed-type cabinet 1.3.6.3. To include cabinet electrical power tapping 1.3.6.4. Proper installation method with patch panel and labeling 1.3.7. Rack-mount UPS <ul style="list-style-type: none"> 1.3.7.1. 1000VA UPS line interactive 1.3.7.2. Rack-mountable <ul style="list-style-type: none"> 1.4. High End Branded Laptop <ul style="list-style-type: none"> 1.4.1. 13th Generation Intel(R) Core(TM) i7-1355U (12 MB cache, 10 cores, up to 5.0 GHz) or better 1.4.2. 8 GB, 1 x 8 GB, DDR4, 3200 MT/s, single-channel 1.4.3. At least 3- cell, 42Wh Battery, Express Charge Capable, 3-year warranty 1.4.4. English US non-backlit keyboard with numeric keypad, 99-key 1.4.5. M.2 2230 PCIe NVMe Gen4x4 256GB SSD Class 35 1.4.6. Intel 13th Gen U-Series CPU, Intel Integrated Graphics 1.4.7. 65W AC adapter, USB Type-C 1.4.8. Intel(R) Wi-Fi 6E AX211, 2x2, 802.11ax, Bluetooth Wireless Card 1.4.9. 15.6" FHD (1920x1080) IPS, 250 nits, FHD Camera 1.4.10. FHD Camera, Temporal Noise Reduction, Camera Shutter, Mic 1.4.11. Intel(R) Rapid Storage Technology Driver 1.4.12. Backpack 1.4.13. Optical Wireless Mouse 1.4.14. Windows 11 Pro, English 1.4.15. 3 years onsite warranty and support <ul style="list-style-type: none"> 1.5. Warranty and Support
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<p>1.3.4.4. Supply and termination of audio cables</p> <p>1.3.5. Compact Switch</p> <p>1.3.5.1. Enterprise compact network switch, 8 ports GE copper, 2 x GE copper and 2 x 10GE SFP uplink ports</p> <p>1.3.5.2. PoE+, 240 watts power budget</p>	<p>1.5.1. Hardware warranty shall be 1 year from the date of delivery except:</p> <p>1.5.1.1. All-in-one conferencing device base unit with 3 years</p> <p>1.5.1.2. Laptop with 3 years</p> <p>1.5.2. Support coverage shall be 1 year after the date of acceptance</p> <p>2. Bidder Qualifications</p> <p>The bidder should have the following competencies:</p> <p>2.1. Operating for 10 years or more offering ICT solutions</p> <p>2.2. With PCAB license for communications facilities issued by DTI</p> <p>2.3. Employ at least 1 (one) network engineer associate (CCNA or equivalent)</p> <p>2.4. Employ at least 1 (one) collaboration engineer associate</p> <p>2.5. Employ at least 1 (one) registered electronics engineer</p> <p>2.6. Has a project management office with PMP-certified staff. The project management office shall oversee the project implementation.</p> <p>2.7. Has 24 x 7 helpdesk facility available to receive support requests. This facility should be reachable thru multiple channels: SMS, e-mail, landline, and mobile. The helpdesk should respond not longer than 1 hour after the support request has been sent.</p>
<p>Note: All statements and formats referring to this clause should be amended/corrected accordingly.</p>	

For guidance and information of all concerned.

For further information, please refer to:

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Noted:

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Vice President for Administration & Finance
Chairperson, Bids and Awards Committee