

ملحق رقم - ٤ -

المواصفات الفنية للاشتراك في المناقصة العمومية لتلزم شراء تجهيزات لزوم قاعة
الاحتفالات في مجمع بيار الجميل الجامعي -
الفنار في الجامعة اللبنانية

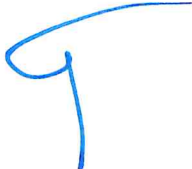
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LOT1

Item NB#	ITEM SPECIFICATIONS			Qty
AUDIO				
1	Loudspeaker Systems	Powered Line Array Module	Active two-way line array loudspeaker element in a compact, lightweight enclosure designed for flown or stacked deployment. Technical Specifications: - Frequency Response: 85 Hz – 16.8 kHz (±3dB, processed). - Coverage Angle: 100° Horizontal × 10° Vertical (-6dB). - Maximum Peak SPL: 133.5 dB @ 1m. - Transducers: LF: Two 8” neodymium woofers with 2” voice coil; HF: One 1.4” neodymium compression driver with 2.5” edgewound voice coil and titanium diaphragm. - Signal Processing: Integrated 40-bit floating-point SHARC DSP processor with 24-bit AD/DA converters; 4 selectable recallable presets. - Amplifier: Built-in Class D with Switch Mode Power Supply (SMPS) and Power Factor Correction (PFC); Output power: 800W (LF) + 400W (HF). - Enclosure: Rigidity-molded polypropylene, equipped with integrated aluminum fast-link front suspension and high-strength steel back suspension with 1/4" fast pins. - Connectors: Balanced XLR-M / XLR-F inputs, EtherCON network links, and Locking PowerCON input/link.	8
2		High-Power Powered Subwoofer	Active very high-output subwoofer system featuring advanced dual large-format transducers for extended low-frequency deployment. Technical Specifications: - Frequency Response: 36 Hz – 100 Hz (±3dB, processed). - Maximum Peak SPL: 143 dB @ 1m. - Transducers: Two high-power 18” drivers with water-repellent cones, epoxy-coated plates, and ultra-linear suspension allowing up to 30mm peak-to-peak excursion. - Voice Coil Technology: Dual 4” inside-outside Tetracoil® voice coils wound on the same former and suspended evenly across dual magnetic gaps. - Amplifier & DSP: Built-in digitally controlled Class D module with SMPS and PFC; Output power: 2000W + 2000W (Total 4000W); 40-bit floating-point SHARC DSP processing with 4 direct-access presets. - Enclosure & Hardware: 15mm reinforced phenolic birch plywood with high-resistance water-based paint, heavy-duty wheels, and integrated high-strength steel side/back suspension rigging hardware. - Connectivity: Balanced XLR input/link, EtherCON network interfaces, and PowerCON TRUE1 locking mains input/output.	2

3		Line Array Rigging Kit	Dedicated structural rigging and suspension flying bar for secure flown or stacked deployment of the main line array elements.	2
4		Subwoofer Rigging Kit	Mechanical coupling and stacking accessories designed to securely anchor and link subwoofers in flown clusters or ground-stack configurations.	2
5		Active Coaxial Stage Monitors	Powered two-way coaxial monitor loudspeaker with a wedge-format cabinet providing highly uniform coverage for stage performers. Technical Specifications: - Transducers: High-performance coaxial transducer comprising a 15" low-frequency woofer and a 1.4" high-frequency compression driver on a single integrated magnet structure. - Amplification: Integrated Class D dual-channel amplifier delivering clean 900W + 300W output with switch-mode power supply. - DSP & Processing: High-resolution onboard digital signal processing providing custom monitor voicing curves, look-ahead limiting, and protection filters. - Enclosure: Multi-angle asymmetrical birch plywood monitor wedge with durable polyurethane paint finish and integrated ergonomic recessed handle.	2
6		Additional Line Array Module front and side fills	Active two-way coaxial utility loudspeaker element sharing identical internal components to the primary main line array series to maintain complete phase alignment. Technical Specifications: - Configuration: Active 15" two-way system containing a precision coaxial high-frequency driver array, providing an identical sonic signature to the main reinforcement cluster. - DSP & Amplification: Integrated Class D electronics delivering matching phase and frequency responses via factory-loaded presets, optimizing full venue coverage continuity.	4
7	Audio Mixing and Control	Digital Mixing Console with Digital Stage box	Professional live sound digital mixing console designed for mid-to-large scale academic and event reinforcement. Technical Specifications: - Processing: 40-bit floating-point digital signal processing with up to 40 concurrent input channels and 25 time-aligned, phase-coherent mix buses. - Analog Inputs/Outputs: 32 studio-quality programmable microphone preamplifiers with fully recallable gain settings; 16 balanced analog XLR outputs. - User Interface: 25 fully motorized 100mm faders arranged in intuitive layers; high-contrast 7" daylight-viewable color TFT display; dedicated channel strip controls and individual electronic scribble strips per channel. - Digital Networking: Dual AES50 network ports supporting up to 96 inputs and 96 outputs via Cat5e cabling with low-latency synchronization. - Effects & Capture: 8 true-stereo digital effects engines containing high-end processor emulations; integrated 32x32 channel USB 2.0 audio interface for multitrack recording and external DAW control.	1

8	Microphones	Wireless Microphone System including: 2x Wireless Handheld Mics 2x Wireless Lavaliers Boddypacks Antenna Distro and Remote antennas.	Digital wireless microphone system delivering transparent 24-bit audio quality and robust RF stability for clear speech and vocals. Technical Specifications:- Audio Quality: 24-bit digital audio resolution with a flat frequency response from 20 Hz to 20 kHz, ensuring precise vocal detail and wide dynamic range (>120 dB).- RF Management: High-efficiency digital wireless transmission in the UHF spectrum; automatic frequency scanning and rapid infrared syncing between receiver and transmitter.- Transmitter: Rugged handheld vocal transmitter equipped with an industry-standard supercardioid dynamic capsule for high gain before feedback. and rugged bodypack transmitter with miniature cardioid lavalier microphone- Receiver: Rackmountable chassis with high-contrast LCD monitoring, detachable antennas, and integrated Ethernet networking for multi-channel setup and coordination software control.	2
9	Loudspeaker Systems	Passive Stage Monitor	Compact, passive multi-purpose utility loudspeaker designed for reliable short-throw stage monitoring, front fill, or distributed delay fills. Technical Specifications: - Configuration: Two-way passive loudspeaker incorporating dual 5.5" low-frequency drivers and a 1" high-frequency dome tweeter arranged in a symmetric vertical pattern. - Power Handling: Continuous rating of 150W (RMS) / 300W (Program) at a nominal impedance of 8 Ohms. - Acoustic Performance: Frequency range of 85 Hz to 20 kHz, wide controlled horizontal coverage, and clean high-frequency transient response. - Enclosure: Low-profile impact-resistant enclosure featuring multi-angle orientations for stage floor wedge use or wall-bracket mounting, with integrated passive protection network.	4
10		4 channels, High-power, Class D, DSP Power Amplifier 	High-performance, 4-channel Class-D digital power amplifier designed for high-profile fixed installations and touring applications. The amplifier features an integrated high-efficiency Switch Mode Power Supply (SMPS) with active Power Factor Correction (PFC) for stable operation across fluctuating AC voltages (90V – 265V) 4 channels delivering a total of 5,000W; rated at 4Ω x 1,250 W at both 4Ω and 2Ω loads. Supports both low-impedance systems and high-impedance (100V / 70V) distributed speaker lines. Frequency response of 20Hz - 20kHz with a Signal-to-Noise Ratio (S/N) ≥ 111dBA and low distortion (THD+N < 0.05%). Integrated 40-bit floating-point DSP with 24-bit AD/DA converters. Features comprehensive routing/matrixing, parametric EQs (5-band input / 10-band output), cross-over filters (up to 48dB/octave), input/output delays up to 600 ms, 1024-tap FIR filters, and dual independent output limiters.	1

11	Microphones	Gooseneck Podium Microphone	Premium cardioid condenser gooseneck microphone designed for auditoriums, boardrooms, and main podium pulpits. Technical Specifications: - Acoustic Element: 18-inch (457mm) adjustable dual-flex gooseneck with an interchangeable cardioid polar pattern condenser cartridge, delivering crisp and highly intelligible speech capture. - RF Protection: Integrated proprietary filtering technology to block RF interference from mobile phones and wireless communication networks. - Base & Preamp: Equipped with a standard desktop base featuring a programmable mute switch with an LED status ring and an integrated low-noise XLR preamplifier.	2
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VIDEO				
12	Video Projection	Laser 4K Projector	High-brightness professional laser phosphor installation projector designed for crisp visual presentations in large lecture halls. Technical Specifications: - Display Engine: Advanced laser phosphor light source offering up to 20,000 hours of maintenance-free operation; native 4K UHD resolution. - Luminous Output: True 5,000 ANSI Lumens of brightness coupled with an ultra-high contrast ratio for vibrant colors and sharp text even under ambient lighting. - Installation Flexibility: 360-degree orientation capability, portrait mode projection, motorized lens shift, and H/V keystone correction with 4-corner adjustment. - Connectivity: Dual HDMI inputs, HDBaseT receiver for long-distance single-cable video/control transmission, and integrated LAN network control.	1
13	Projection Screen	Motorized Projection Screen	Heavy-duty large-format motorized projection screen suitable for flush ceiling or wall installations in multipurpose venues. Technical Specifications: - Dimensions & Aspect Ratio: Net viewing area of 600 cm width × 450 cm height with a 4:3 aspect ratio, complete with black masking borders to enhance perceived contrast. - Fabric: Matte white flame-retardant, fiberglass-reinforced high-stability screen surface with wide viewing angle and optimal color uniformity. - Motor & Control: Low-noise high-torque internal tubular motor; integrated multi-voltage control box supporting low-voltage contact closures, RF remote control, and automated 12V trigger interfaces.	1
14	AV Switching & Scaling	HDMI/HDBaseT Switcher/Scaler	Multi-format presentation matrix switcher and scaler providing seamless routing of high-definition video feeds. Technical Specifications: - Signal Routing: Professional matrix scaling engine with multiple digital inputs including HDMI and native long-distance HDBaseT. - Resolution Support: Advanced down/up scaling processing capable of handling resolutions up to 4K @ 60Hz with 4:4:4 color sampling; HDCP compliant. - Audio Integration: Embedded audio extraction and multi-channel routing capabilities with independent volume adjustments per output zone.	1
15		HDMI Distribution / Input Interface	Architectural AV input interface and long-distance transmission transmitter node for podium or wall-plate placement. Technical Specifications: - Transmission: Transmits uncompressed HDMI video, embedded audio, and bidirectional control signals over a single shielded Cat6 cable up to 70 meters. - Form Factor: Decora-style wall plate transmitter featuring auto-switching inputs for immediate source recognition.	2

STAGE LIGHTING				
16	Stage & Architectural Lighting	LED Profile Fixture	High-power ellipsoidal profiling spot fixture with full color-mixing capabilities and integrated zooming optics. Technical Specifications: - Light Source: 305-Watt 5-color homogenized LED engine incorporating Red, Green, Blue, Mint, and Amber emitters with a high color rendering index (CRI) of 93.5. - Luminous Output: Total output exceeding 10,600 lumens; variable Correlated Color Temperature (CCT) adjustment from 2,400K to 8,500K with dedicated Magenta/Green color shift tuning. - Optics & Framing: Integrated manual zoom range from 6° to 50° without requiring separate lens tubes; full blackout 4-blade manual framing shutter system, manual iris, and 360° barrel rotation. - Effects: 16-bit variable dimming curves, and a built-in 16-bit rotating/indexing interchangeable glass gobo slot. - Control & Connections: Multiple DMX channel modes (up to 21 channels), RDM protocol support, integrated internal wireless DMX transceiver, 5-pin DMX inputs/outputs, and IP65 locking power connections.	4
17		LED Fresnel Fixture	High-power high-output full-color-spectrum theatrical Fresnel luminaire producing soft-edged wash illumination. Technical Specifications: - Light Source: 500-Watt multi-color full-spectrum LED light engine utilizing a homogenized array of Red, Green, Blue, Mint, and Amber LEDs. - Photometrics: High CRI (>92) for natural skin tone rendering; wide manual or automated zoom field from tight spot to wide wash; total luminous output exceeding 11,000 lumens. - Theatrical Hardware: Heavy-duty 8-leaf rotatable barndoors and a 7.5" front accessory frame slot for color gel filters or diffusion lenses. - Operation: Whisper-quiet cooling fans optimized for silent theatrical environments, 16-bit smooth dimming, and standalone manual control encoders.	18
18		LED PAR Fixture	High-output indoor LED PAR wash fixture with robust multi-color blending for stage and scenic illumination. Technical Specifications: - Light Source: 18x 12-Watt 6-in-1 RGBAW+UV (Red, Green, Blue, Amber, White, and Ultraviolet) LEDs, ensuring full-saturated color mixes and pastel tones. - Optics & Physical: Fixed 15-degree beam angle; heavy-duty die-cast aluminum housing with a dual-yoke floor mount bracket for floor uplighting or truss hanging. - Electronics: Flicker-free operation for broadcast/recording cameras; DMX-512 control protocols with selectable macro color presets and dimming modes.	18

19	Lighting Control	Lighting Control Console	Compact, professional lighting playback and control console designed for small-to-medium theatrical venues and events. Technical Specifications: - Capacity: Native hardware support for 4 DMX universes and up to 2,048 channels of synchronized fixture control. - Interface: 10.1-inch high-definition multi-touch display screen; 4 rotary encoders with push function; 10 motorized or playback faders with dedicated master control controls. - Software Architecture: Comprehensive internal fixture library; full support for advanced multi-cue lists, visual timeline editing, color-mixing pickers, and pixel mapping engines. - Connectivity: 5-pin DMX outputs, dual Gigabit network ports for Art-Net/sACN distribution, USB slots for backup, and remote application triggering.	1
20	Lighting Infrastructure	DMX Splitter / Distribution Unit	Professional-grade DMX512 signal splitter and buffer designed to maintain protocol integrity across distributed lighting networks. Technical Specifications: - Isolation: Full electrical and optical isolation between the input and all outputs, protecting sensitive control consoles from high-voltage surges up to 1000V. - Distribution: 1-channel DMX input with passive loop-through; 5 independent optically isolated DMX output channels utilizing robust 5-pin XLR connectors. - Form Factor: Rugged 1U 19-inch rack-mountable or truss-clamped metal housing with clean LED data indicator indicators for immediate troubleshooting.	2

CONTROL ROOM

21	Control Room Equipment	Main Rack Back-end Equipment	Professional-grade centralized AV equipment rack enclosure designed to house and protect core processing, routing, and control infrastructure. including all necessary control, matrexing and interfacing equipment for a complet AV integration with the floor I/O interfaces Technical Specifications: • Structural Frame: Standard 19-inch rack format with a total vertical capacity of 42U; manufactured from heavy-duty welded cold-rolled steel with a scratch-resistant powder coat finish. • Thermal Management: Integrated smart ventilation system featuring a roof-mounted thermostat-controlled multi-fan extraction tray, complemented by fully ventilated mesh front and rear doors to maximize internal airflow. • Power Distribution Units (PDUs): Dual vertical (0U) or horizontal rack-mountable intelligent PDUs, each equipped with a minimum of 12 industrial-grade outlets, integrated surge protection, thermal circuit breakers, and LED status indicators. • Physical Security & Layout: Lockable, reversible tempered glass or perforated steel front door, lockable split side panels for rapid maintenance access, adjustable heavy-duty equipment mounting rails with clear U-marking labels, and an integrated vertical cable management channel with velcro tie points. • Mobility & Grounding: Heavy-duty swivel casters supporting a dynamic load capacity of at least 800 kg, leveling feet for structural stabilization, and a dedicated copper grounding busbar kit linked to all structural rack panels.	1
22	SERVICES AND MAINTENANCE		Warranty Maintenance & Support	1
23	SERVICES AND MAINTENANCE		Operation Services	1

LOT2

Item Nb#	ITEM SPECIFICATIONS			Qty
AUDITORIUM FURNITURE				
1	Auditorium Furniture	Auditorium Lecture Hall Chair	Ergonomic lecture hall and auditorium seating element with integrated writing tablet, designed for academic environments. Technical Specifications: - Dimensions & Spacing: Center-to-center (CC) spacing of 570 mm. Total width: 550 mm, depth: 650 mm, seat height: 450 mm, overall height: 610 mm. - Foam Composition: High-density, high-elasticity polyurethane foam utilizing dual-density technology; minimum density of 60 kg/m³ for the seat cushion and 55 kg/m³ for the backrest. - Outer Panels: Seat and backrest outer shells constructed from rotary-cut multi-layered premium plywood, hot-pressed under high pressure and finished with protective varnish. - Upholstery Fabric: Highly durable linen fabric, with customizable color options as per project requirements. - Armrest Frame: Structural support frame manufactured from high-grade precision-stamped and welded steel plates. - Armrest Cap: Manufactured from premium hot-pressed multi-layered plywood with a protective finish. - Return Mechanism: Automatic seat-return system driven by an engineered heavy-duty spring counter-balance mechanism. - Integrated Writing Tablet (Side Type): Molded single-piece composite ABS writing tablet with a thickness of 9 mm; equipped with a specialized mechanical rotation positioning system; supporting internal structure constructed from high-strength die-cast aluminum alloy; pivot joint connected to the armrest manufactured from corrosion-resistant stainless steel.	600
2	Stage & Architectural Infrastructure	Motorized Theatrical Stage Curtain System	Professional-grade, heavy-duty motorized stage curtain system engineered for theatrical environments. Technical Specifications: • Material & Fabric: Premium-quality theatrical velvet upholstery, featuring a deep burgundy (Bordeaux) color tone with high light-absorption properties. • Safety & Hygiene Treatments: Industrially treated with durable flame-retardant (FR) properties complying with international theatrical safety regulations; incorporates comprehensive anti-bacterial/anti-microbial treatment. • Origin: Manufactured in Turkey to international textile standards. • Dimensions: Total fabric area of 185 square meters (\$185\text{m}^2\$). • Motorization System: Equipped with two (2) heavy-duty, ultra-quiet smart motorized curtain tracks; specifications matching high-torque professional curtain motors with a loading capacity of up to 60 kg (such as Glydea RTS 60 or equivalent), featuring integrated Radio Technology Somfy (RTS) receivers for flawless wireless operation. • Control System: Delivered complete with dedicated multi-channel wireless remote controllers for independent or synchronized operation of the main curtain drapery panels.	1