

Project Case Study

AMERICAN UNIVERSITY OF SHARJAH

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The Project

The American University of Sharjah (AUS) theatre refurbishment project involved the comprehensive modernization of an existing performance venue that had been operational for over two decades. The objective was to upgrade the facility into a technologically advanced, multi-functional performance space capable of supporting academic, cultural, and professional events in line with international standards.

The project was executed as a full design-and-build solution, encompassing system design, engineering, procurement, installation, integration, testing, and commissioning. The upgraded theatre was required to meet the evolving demands of modern performance environments, including high-definition visual systems, networked audio infrastructure, intelligent lighting, and integrated control platforms.

A key strategic objective was to future-proof the facility by transitioning from legacy systems to IP-based, scalable architectures, ensuring long-term operational efficiency, ease of maintenance, and adaptability to emerging technologies.



Scope of Work

Oasis Enterprises was responsible for delivering a complete upgrade of all core theatre systems, ensuring seamless interoperability and optimized performance across all disciplines.

a. Audio System (Dante-Based Digital Audio Network)

- Replacement of legacy analogue audio systems with a Dante-enabled digital audio network, facilitating real-time, low-latency audio transmission over standard IP infrastructure.
- Integration of digital mixing consoles, DSP processors, and networked amplifiers to ensure:
 - High speech intelligibility (aligned with industry benchmarks such as STI targets)
 - Consistent sound pressure levels (SPL) across audience zones
 - Flexible signal routing for multiple performance configurations
- Provision for wireless microphone systems, stage inputs, recording, and external broadcast interfacing.

b. Visual Display System (Direct-View LED Technology)

- Replacement of conventional projection systems with high-resolution LED display screens, delivering:
 - Superior brightness and contrast ratios
 - Enhanced image clarity under varying ambient lighting conditions
 - Improved reliability and reduced maintenance lifecycle
- Integration with professional-grade video processors, switchers, and signal distribution systems supporting multiple input formats and live content switching.

Scope of Work

c. Stage Lighting and Rigging Systems

- Upgrade from halogen fixtures to energy-efficient LED stage lighting systems, reducing power consumption and thermal load within the theatre environment.
- Deployment of intelligent lighting fixtures with DMX-controlled dimming and programmable scenography.
- Integration with ETC-controlled motorized rigging hoists, enabling:
 - Automated and precise positioning of lighting bars and stage equipment
 - Safe load handling compliant with international rigging standards
 - Flexible stage configurations for different event types

d. Acoustic Treatment and Optimization

- Implementation of custom acoustic treatment solutions to address deficiencies in the original theatre design, including:
 - Reduction of reverberation time (RT60)
 - Enhancement of speech intelligibility and tonal balance
 - Control of reflections and echo within the performance space
- Acoustic improvements were based on modelling and analysis aligned with multi-purpose usage requirements.

Scope of Work

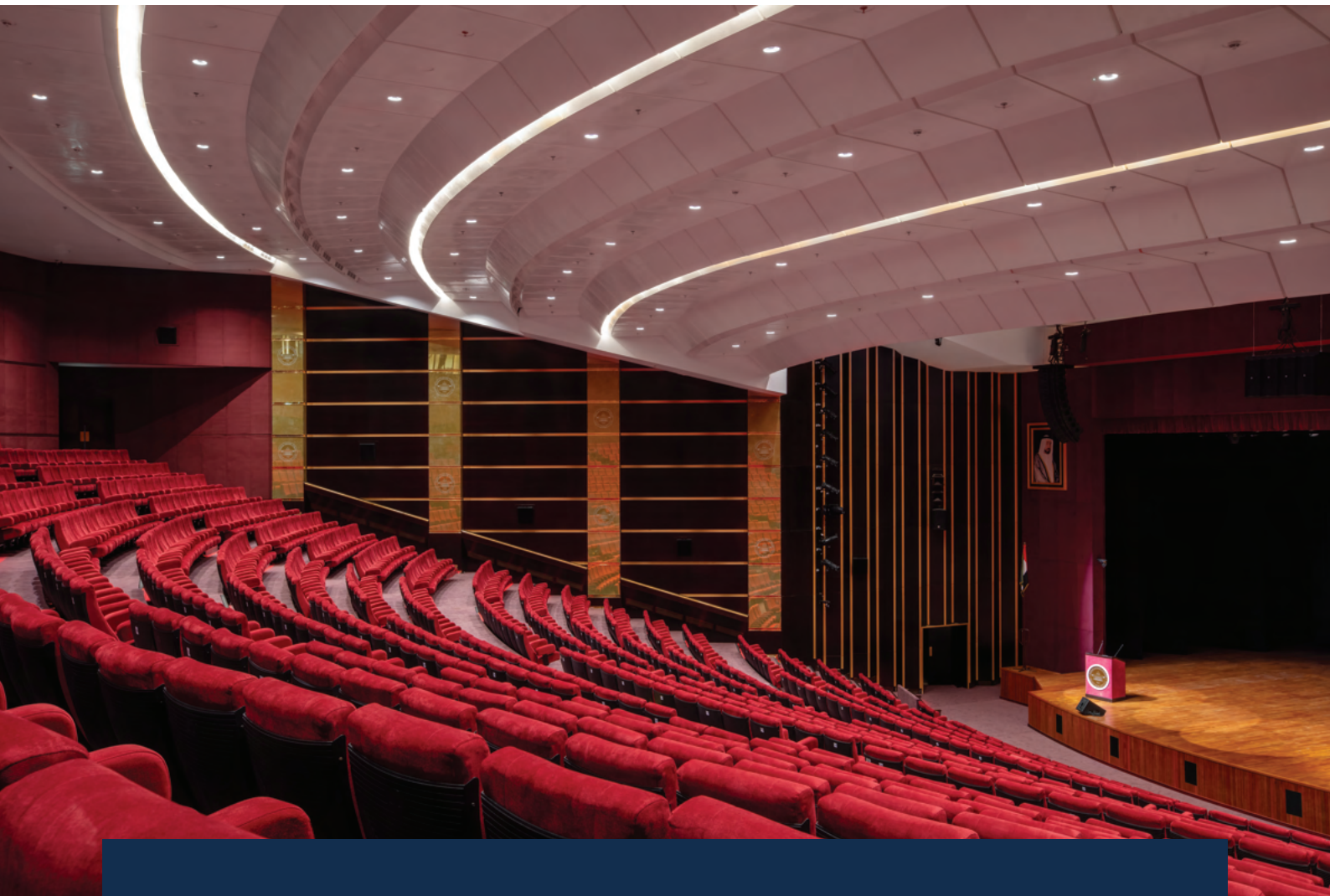
e. Interior and Stage Infrastructure Refurbishment

- Replacement of stage curtains with fire-rated, acoustically optimized materials compliant with safety standards.
- Installation of new seating systems, designed for improved ergonomics, durability, and audience comfort.
- Upgrade of performance flooring, engineered to support a range of activities including theatre, dance, and live performances.

f. Integrated Control System

- Deployment of a centralized AV and stage control system, enabling unified operation of all subsystems including audio, video, lighting, and rigging.
- User interfaces designed for operational simplicity, including touch panels and preset-based control modes.
- System architecture designed with redundancy, fail-safe operation, and real-time monitoring capabilities to ensure reliability during live events.

Client Requirements



The American University of Sharjah required a future-ready theatre environment that enhances both educational and performance capabilities while ensuring operational efficiency.

Key technical requirements included:

- Migration to digital, IP-based AV infrastructure for scalability and flexibility
- Delivery of high-quality audio performance with consistent intelligibility across all seating areas
- Implementation of advanced visual systems capable of supporting modern multimedia content
- Adoption of energy-efficient lighting solutions aligned with sustainability objectives
- Integration of automated rigging systems ensuring safety and operational precision
- Improvement of acoustic performance to meet contemporary standards for speech and music
- Provision of a centralized, user-friendly control system to simplify operations
- Completion of the project within defined timelines despite external constraints

Project Challenges

The project involved several complex technical and operational challenges, requiring careful engineering and coordination:

- **Legacy Infrastructure Constraints:**

The existing theatre structure imposed limitations on system routing, equipment placement, and structural loading, requiring tailored design solutions.

- **System Migration and Integration:**

Transitioning from analogue to digital systems required meticulous planning to ensure compatibility, minimize downtime, and maintain performance continuity.

- **Acoustic Limitations of Existing Space:**

The original acoustic design did not meet modern standards, necessitating advanced modelling and targeted treatment solutions.

- **Rigging and Structural Coordination:**

Installation of motorized hoists and LED systems required coordination with structural engineers to ensure compliance with load-bearing and safety requirements.

- **Network Bandwidth and Latency Management:**

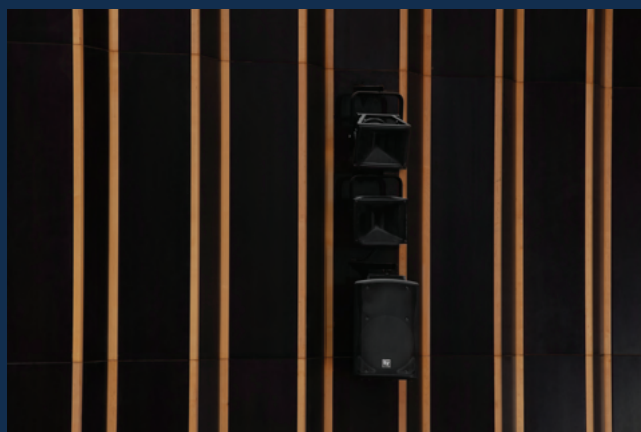
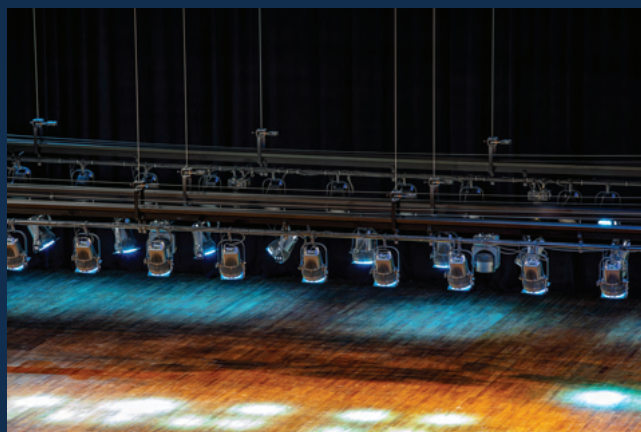
The implementation of Dante-based audio and high-resolution video systems required robust network design to ensure low latency and high reliability.

- **COVID-19 Pandemic Constraints:**

The project execution coincided with the global pandemic, introducing challenges such as:

- Supply chain disruptions for AV equipment
- Workforce and site access restrictions
- Implementation of strict health and safety protocols

These were mitigated through proactive planning, alternative sourcing strategies, and phased execution.





Project Outcomes

The refurbishment project was successfully completed and handed over by the end of 2021, meeting all defined technical and operational objectives.

Key outcomes include:

- **Modernized Theatre Environment:**

Transformation into a fully digital, high-performance venue aligned with current industry standards.

- **Enhanced Audio-Visual Quality:**

Implementation of Dante-based audio and LED display systems significantly improved clarity, reliability, and user experience.

- **Improved Energy Efficiency:**

LED lighting systems reduced energy consumption and maintenance requirements, supporting long-term operational sustainability.

- **Optimized Acoustic Performance:**

Acoustic treatments delivered measurable improvements in speech intelligibility and sound distribution.

- **Advanced Stage Capabilities:**

Integration of automated rigging and intelligent lighting enabled flexible and efficient stage operations.

- **Centralized Control and Ease of Use:**

Unified control system streamlined operations, reducing complexity for technical staff and improving response times.

- **Successful Delivery Under Constraints:**

Despite pandemic-related challenges, the project was delivered on schedule through effective coordination, risk management, and adherence to safety protocols.

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