CASE STUDY

Extron AV Switching, Distribution, and Control Enhance Learning, Collaboration at Pontifical Universidad Javeriana

Extron

An Extron SMD 101 Streaming Media Decoder provides HDMI video to multiple digital signage displays, including this display in the Science Building entry courtyard. Digital signage content produced by a PC located in the Science Building cafeteria is delivered to the SMD 101 via the campus Ethernet LAN.

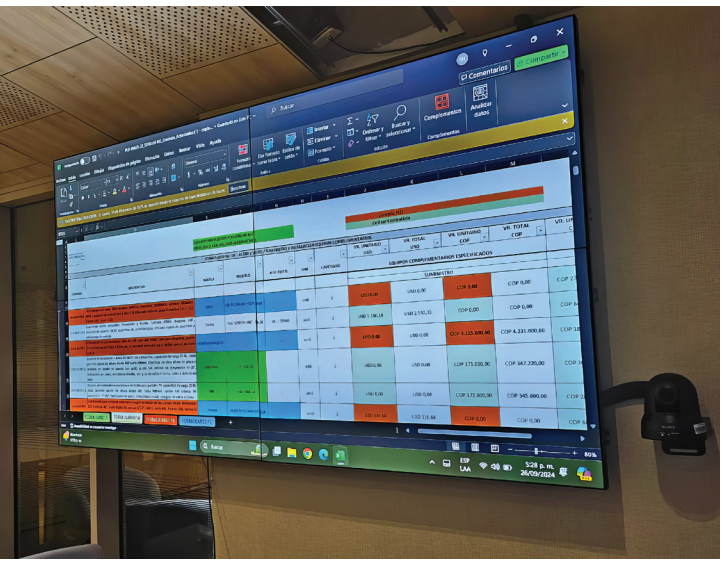
The Science Building shown here and the Engineering Building shown in the lead image are two of the latest AV-rich additions to the PUJ Bogotá campus.

Pontifical Universidad Javeriana (PUJ) is a private Catholic university with campuses in Bogotá and Cali, Colombia. Founded in 1623, today it is ranked as the number one university in Colombia. Just over 21,000 students study in 48 undergraduate programs and 191 postgraduate programs with concentrations in the sciences and humanities.

The recent construction of two 14 story buildings for the Science and Engineering faculties reinforces the university's leading position as a center of excellence for the Civil, Electronic, Industrial, and Systems Engineering departments. The Science Building hosts 36 research labs, 27 teaching labs, and 25 common area spaces. Research conducted in the labs encompasses pharmaceutical technology, electron microscopy, immunobiology, and environmental biotechnology, among others. The Engineering Building has more than 96 spaces where students and researchers work on collaborative projects focused on data analytics, artificial intelligence, the Internet of Things, energy and bioresources, health, sustainable infrastructure and transport, construction materials, climate change, corporate organization and productivity, and more.

HUNDREDS OF INSTRUCTIONAL SPACES OUTFITTED WITH EXTRON TECHNOLOGY

Professional AV design and integration firm Stream NG, headquartered near PUJ's main campus in Bogotá, fitted out both buildings with extensive audiovisual capabilities that reach every corner of the complexes. Over 500 pieces of Extron equipment went into the AV systems, ranging from WallVault® and PlenumVault® Digital classroom systems, to DTP® Systems transmitters, receivers, and switchers, ShareLink® Pro presentation systems, audio amplifiers, audio DSP processors, speakers, Cable Cubby® cable access enclosures, TouchLink® Pro touchpanels, NBP and eBUS® button panels, MediaLink® Plus controllers, IP Link® Pro xi control processors, and HDMI cables, to name a few.



Sophisticated Council Room in the Science Building boasts a videowall comprised of multiple flat panel displays and a Cable Cubby TouchLink Pro touchpanel to control the AV system.

DESIGN SOLUTION

Classrooms, Meeting Rooms, and Lecture Theaters

Classrooms and meeting rooms in the Science Building and the Engineering Building come in a range of seating capacities, with varying AV features designed to fit many types of teaching, collaboration and presentation scenarios: from a handful of people gathering around a single screen in small collaboration rooms, to large audiences in tiered-seating lecture theaters. The AV system designs are optimized for the size and function of the venues. All of the designs depend on DTP signal extension to connect audiovisual content from sources to screens. DTP supports twisted pair cable runs up to 330 feet (100 meters), meeting the need for sending AV signals over long distances encountered in these high-rise buildings.

Collaboration spaces come in all sizes, ranging from small, quiet meeting rooms with a single screen for sharing ideas from a laptop to expansive venues with multiple workstations that can send AV content to multiple projectors and pendant speakers.

Sources and Displays

Almost every room offers several ways to present AV content: dedicated room PC, visitor laptop, portable devices, wired and wireless microphones, and PTZ cameras. Projectors are used to show video in larger rooms. Flat panel displays are used in smaller spaces. Some rooms have both types of displays, with the flat panel displays reinforcing the projection displays.

Sound Systems

Smaller rooms rely on the flat panel display's built-in speakers for sound. There are also a few rooms geared toward showing PowerPoint images without sound. Larger rooms play audio through two or more pendant or ceiling speakers driven by Extron amplifiers. Several different amplifier models with varying power capabilities are used to create the best listening experience based on room size and the quantity of speakers in the room's AV system. In most of the rooms, the amplifiers receive analog audio from a projector, flat panel display, or a DTP receiver. In the largest venues, including auditoriums, DMP 64 Plus or DMP 128 Plus audio DSP processors with acoustic echo cancellation optimize the characteristics of audio to best suit the room acoustics so that presenter voices and program audio are heard clearly.

AV Signal Switching and Extension

Audiovisual content sources connect to DTP wallplate transmitters. In smaller rooms, the DTP transmitters connect directly to the HDBaseT inputs of the displays or are used with DTP receivers for connection to the displays via HDMI. AV systems in larger rooms with multiple sources and displays use DTP CrossPoint® matrix switchers to route AV content

Computer lab collaboration space.

“There were several cases where the ‘as-built’ length of cable chases or conduits exceeded the design shown in building construction drawings. We were fortunate to have designed the AV systems around Extron’s DTP Systems. DTP’s ability to extend AV signals up to 330 feet (100 meters) over shielded CATx cable allowed us to proceed uninterrupted with installation on our planned schedule with no AV system design modifications needed to accommodate the unanticipated increases in cable run lengths.”

Harold Camargo
Chief Executive Officer
Stream NG

from the desired sources to the intended displays and to the sound system.

Wireless Sharing From Portable Devices

Several meeting rooms and labs are equipped with ShareLink Pro presentation systems that give attendees the option to wirelessly share AV content from smartphones, tablets, and other Wi-Fi equipped portable devices. In the Science Building, five rooms feature mobile 65" touchscreen electronic flip charts that can display content supplied wirelessly from mobile devices via ShareLink Pro 1100 and ShareLink Pro 2000. The Council Room in the Science Building also enables wireless sharing via ShareLink Pro to a videowall comprised of 55" flat panel displays arranged two high by three wide. Divisible labs in the Engineering Building use up to three ShareLink Pro units in each room so that different AV content can be wirelessly shared from portable devices in each divisible section of the lab.

Control

The size and purpose of the rooms determine the scope of the AV control functions. In smaller rooms where sources connect directly to displays, Network Button Panels work with Extron

Typical laboratories are equipped with projectors, flat panel displays, PCs for sourcing AV content, and button panels that control AV system operation.

AV equipment is housed in a variety of custom-constructed racks and furniture compartments.

"Extron AV systems are characterized by their quality, efficiency, and reliability. Extron control and user interface software is logical and stable, making programming and configuring AV systems straightforward and rapid. Another notable Extron strength is the versatility of its CrossPoint® matrix switchers. It integrates everything needed for equipment control, signal routing, amplification, and audio management, among other features."

Harold Camargo
Chief Executive Officer
Stream NG

control processors to provide a simple mechanical pushbutton user interface that turns displays on and off, selects sources, and adjusts speaker volume. MediaLink® Plus controllers are used in other rooms where the AV system designers wanted a mechanical button panel interface, but with the controller function built into the control panel.

In larger rooms with DTP CrossPoint matrix switchers and other advanced AV functionality, TouchLink Pro touchpanels with custom GUIs guide users intuitively through the more complex AV functions that are available.

HD CTL 100 workspace automation controllers further simplify the user experience in small meeting rooms. When an active signal is connected to the HDMI input, the unit automatically turns on the displays and selects the correct display input. OCS 100 occupancy sensors integrate with the HD CTL 100 to automatically power displays on when users enter the room and off when the rooms are vacant. Divisible labs with movable walls are equipped with ECM S10 partition sensors that automate AV system behavior based on the position of the wall.

Science Building Auditorium.

GlobalViewer® Enterprise is used to remotely monitor and control the school's array of AV systems from a central location, providing live help to users when needed and proactively monitoring AV system usage to prolong equipment life and save energy by turning off systems not in use.

Science Building Auditorium

Beyond the extensive use of audiovisual technology in teaching and lab spaces, AV also has a featured role informing and entertaining the general public in the Science Building auditorium. The auditorium hosts major colloquia, theatrical, and music performances requiring high production values for sound, lighting, and audiovisual support. DTP switching and distribution facilitates the long AV signal cable runs in this large venue. An MGP 641 xi multi-window processor enhances presentations with the ability to display up to four video source windows on a single canvas and an Annotator 401 annotation processor enables drawing, pointing, or typing over live presentations.

Further adding to the audience reach of the auditorium is an SMP 351 streaming media processor for capturing and distributing AV sources and presentations as recorded media

"Extron for Javeriana University is more than just an audio and video technology provider; it's a travel companion and a dream enabler. Much of what we've achieved is thanks to having Extron as our teammate."

Javier Forero Torres
Director of Physical Resources
Pontifical Universidad Javeriana

“The strategic alliance between Extron and Javeriana University has built a relationship of trust that has enabled the implementation of high-availability, scalable, and versatile audiovisual systems.

These systems are integrated with quality standards that ensure optimal and sustainable long-term performance, allowing for tailored technological upgrades to meet new demands arising from the global challenges of digital transformation.

This partnership also supports the University’s efforts to expand its academic offerings for a different target audience, contributing to the diversification of its service portfolio and guaranteeing technological excellence in the service of education.”

Ingrid Johanna Guerrero Grosso
Automation and Control Coordinator
Pontifical Universidad Javeriana

or for live streaming. A MediaPort® 300 scaling bridge enables video conferencing via UC applications like Zoom and Teams.

RESULTS

Extron AV systems have been a fixture at Pontifical Universidad Javeriana campuses for over 20 years. More than 300 classrooms and academic spaces are equipped with Extron AV solutions.

Once instructors and students are trained on the use of the AV systems and become familiar with the button panel and touchpanel control interfaces, users express their satisfaction with the seamless, intuitive operation of the equipment. They set up their audiovisual presentations with confidence, noting the snappy response to commands.

Audiovisual technology is a powerful educational tool. Multimedia learning takes advantage of the brain's ability to associate verbal and visual information to promote deeper engagement and understanding. Today's students are digital natives, wired to consume information electronically.

Pontifical Universidad Javeriana, with its extensive implementation of AV teaching tools in classrooms, laboratories, collaboration spaces, and simulation environments, takes full advantage of technology to enhance student learning, making it more realistic and interactive. The university has not only improved the educational experience for its students but has established a model for other institutions in Latin America and beyond.

PONTIFICAL UNIVERSIDAD JAVERIANA VIDEO LINKS

Click here to watch the “¡Javeriana somos todos! (We are Javeriana!)” overview of the university on YouTube. **NOTE:** The audio track is in Spanish. To have YouTube generate auto-translated subtitles, turn on closed captions (CC), then use Settings (⚙) to enable "Auto-translate" and select your desired language.

Follow this link to PUJ’s OUR SPACES web page to view short video tours. Click the buttons for each space, then See more >> Watch video.

Photos and videos courtesy of Pontifical Universidad Javeriana.

FEATURED EXTRON PRODUCTS

Model	Description
WallVault® Digital Systems	Complete AV Switching and Control Systems for Flat Panel Displays and Wall-Mounted Ultra Short-Throw Projectors
PlenumVault® Digital Systems	Complete AV Switching and Control Systems for Suspended Ceilings
VLM 3001	VoiceLift® Pro High Performance Wireless Microphone, Pendant
VLM 3002H	VoiceLift Pro High Performance Wireless Microphone, Pendant and Handheld
DTP CrossPoint 108 4K	10x8 Seamless 4K Scaling Presentation Matrix Switcher
DTP CrossPoint 82 4K	8x2 Seamless 4K Scaling Presentation Matrix Switcher
DTP CrossPoint 84 4K	8x4 Seamless 4K Scaling Presentation Matrix Switcher
IN1808 IPCP Q MA 70	Eight Input 4K/60 Seamless Presentation Switcher and 70 V Mono Amp
SW2 HD 4K PLUS	4K/60 HDMI Switcher with Ethernet Monitoring and Control
DTP T USW 233	Three Input Switcher with Integrated DTP Transmitter and Audio Embedding
DTP2 T 202 FB	Two Input 4K/60 DTP2 Transmitter for Floor Boxes
DTP T HWP 4K 231 D	DTP Transmitter for HDMI - Decorator-Style Wallplate
DTP R HWP 4K 231 D	DTP Receiver for HDMI - Decorator-Style Wallplate
DTP T HWP 232 D	Two Input DTP Transmitter for HDMI with Audio Embedding - Decorator-Style Wallplate
DTP2 T 203	Three Input 4K/60 Switcher with Integrated DTP2 Transmitter
DTP2 T 211	4K/60 HDMI DTP2 Transmitter with Audio Embedding
DTP2 R 211	4K/60 HDMI DTP2 Receiver with Audio De-Embedding
DTP T HD2 4K 230	DTP Transmitter for HDMI with Input Loop-Out
DTP HDMI 4K 230 Rx	DTP Receiver for HDMI
HC 402	Meeting Space Collaboration System – Decorator-Style Wallplate
DA2 HD 4K PLUS	Two Output 4K/60 HDMI Distribution Amplifier
DTP HD DA4 4K 230	Four Output DTP Distribution Amplifiers
USB Extender Plus D T	Twisted Pair Extender for USB Peripherals – Transmitter - Decorator-Style Wallplate
USB Extender Plus D R	Twisted Pair Extender for USB Peripherals – Receiver - Decorator-Style Wallplate
USB Extender Plus T	Twisted Pair Extender for USB Peripherals – Transmitter
USB Extender Plus R	Twisted Pair Extender for USB Peripherals – Receiver
ShareLink Pro 1100	Wired and Wireless Presentation System
ShareLink Pro 2000	4K Wireless Presentation System
MGP 641 xi	4K/60 HDMI Multi-Window Processor with DTP3 Extension
SMP 351	H.264 Streaming Media Processor
MediaPort 200	HDMI and Audio to USB Scaling Bridge
MediaPort 300	4K HDMI and Audio to USB Scaling Bridge
Annotator 401	4K/60 Annotation Processor with USB Extension
SMD 101	H.264 Streaming Media Decoder
SMD 202	H.264 Streaming Media Player and Decoder
DMP 64 Plus C	6x4 ProDSP™ Digital Matrix Processor with AEC
DMP 128 Plus C AT	12x8 ProDSP Processor with AEC and Dante
MVC 121 xi	Three Source Audio Mixer with DSP
XPA® 1002	Two Channel Low Impedance Amplifier - 60/100 Watts Per Channel
XPA U 1002	Two Channel Low and High Impedance Amplifier - 100 Watts Per Channel

FEATURED EXTRON PRODUCTS

Model	Description
XPA U 1004	Four Channel Low and High Impedance Amplifier - 100 Watts Per Channel
XPA U 2002 SB	Two Channel Bridgeable Output Amplifier - 200/400 Watts Per Channel
MPA 601	Mono 70/100 V Amplifier - 60 Watts
SF 3PT	SoundField® 3" Full-Range Pendant Speaker
SF 26CT LP	SoundField XD 6.5" Two-Way Ceiling Speaker - Low Profile Back Can
SF 26PT	SoundField 6.5" Two-Way Pendant Speaker
SM 26	SpeedMount® Two-Way Surface Mount Speakers with 6.5" Woofer
SM 28T	SpeedMount Two-Way Surface Mount Speakers with 8" Woofer - Transformer
HD CTL 100	Workspace Automation Controller
TLP Pro 525M	5" Wall Mount TouchLink Pro Touchpanel
TLP Pro 725C	7" Cable Cubby TouchLink Pro Touchpanel
TLP Pro 725M	7" Wall Mount TouchLink Pro Touchpanel
TLP Pro 725T	7" Tabletop TouchLink Pro Touchpanel
TLS 725M	7" Wall Mount TouchLink Scheduling Panel
MLC Plus 50	MediaLink Plus Controller
MLC Plus 100	MediaLink Plus Controller
MLC Plus 200	MediaLink Plus Controller
EBP 100	eBUS Button Panel with 6 Buttons - US 2-Gang
NBP 100	Network Button Panel with 6 Buttons - US 2-Gang
NBP 200	Network Button Panel with 10 Buttons - US 3-Gang
VC 50	Volume Control Wallplate
PI 115	Power Injector for XTP and Pro Series Control Systems
OCS 100C	Occupancy Sensor
ECM S10	Partition Sensor Set
WPD 110 A	Audio, Video, and Data Pass-Through Wallplate - Decorator-Style
Cable Cubby 100	Cable Access Enclosure for AV Connectivity and Power
Cable Cubby 202	Cable Access Enclosure for AV Connectivity and Power
Cable Cubby 1202	Cable Access Enclosure for AV Connectivity, Remote Control, and Power

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