CASE STUDY

Extron AV Technology Enhances Over 200 Educational Spaces at Utah Tech University

Extron

A typical standard classroom. The instructor station includes a touchpanel to control AV system operations and AV equipment is mounted in a compact equipment rack.

All photos courtesy of Utah Tech University

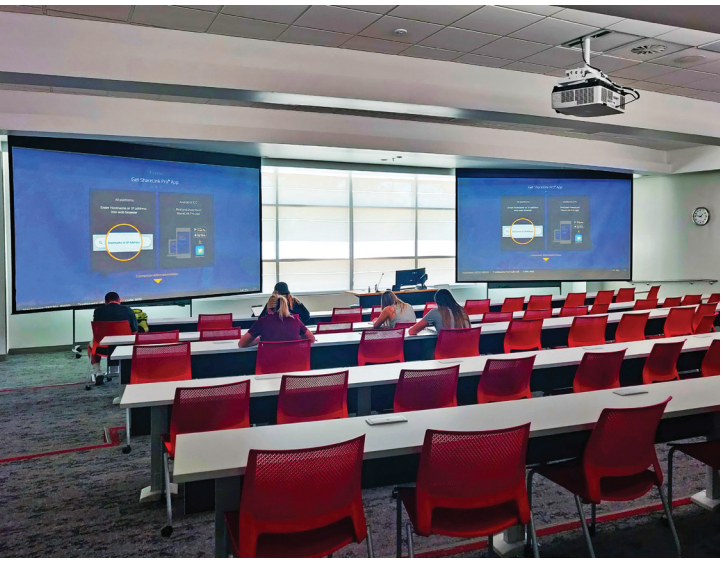
Utah Tech University is a public university situated on a 117-acre main campus in St. George, Utah. Approximately 12,500 students are pursuing studies leading to associate, bachelor's, and master's degrees in the arts, business, education, health science, humanities, and STEM. The university practices a polytechnic educational model that relies on active learning, student career preparation, and industry collaboration designed to foster regional economic and workforce growth.

CHALLENGES

To outfit the university's new 163,000 square-foot Science, Engineering, and Technology (SET) building with the latest AV technology, Shaun Hayes, Utah Tech's Senior Audiovisual Administrator brought on pro AV integrator Marshall Industries of Salt Lake City, Utah for design and installation assistance. Extron supplied AV switching, distribution, control, and audio amplification equipment for 35 classrooms, labs, lecture halls, and conference rooms.

Beyond the new-build AV systems installed in the SET building, the university's own AV staff implemented an extensive AV standardization initiative, retrofitting a hodge podge of dissimilar AV systems and unreliable hardware in 175 rooms across 31 buildings to create standard systems based on Extron technology that is reliable and is efficiently managed remotely.

The Lecture Hall scales-up the standard classroom AV system design to include more displays, more microphones, more user interface touchpanels, multiple cameras, and a UC codec for video conferencing.



Large classrooms have multiple displays and multiple directional mic arrays.

"My long-standing experience with Extron is one factor influencing selection of Extron as an AV equipment supplier for the SET building and other campus AV upgrades. But the major technical delineators were Extron's AV system control and remote support models, which make it extremely easy for AV professionals to design, configure, and manage complex rooms."

Shaun Hayes, CTS, ECP
Senior Audiovisual Administrator,
Information Technology Department
Utah Tech University

DESIGN SOLUTION

Science, Engineering, and Technology Building – Five Floors of AV-Enhanced Educational Spaces

The SET building houses the university's STEM-focused departments. AV assets range from single-screen classrooms, to large lecture halls with multiple screens, to anatomy labs with multiple dissection tables that each have a camera and display to facilitate group viewing without having to crowd around the tables.

Standard Classrooms

Twenty standard classrooms located on all five building levels host teaching in diverse science and engineering subjects that include chemistry, microbiology, geology, physics, mechatronics, and others. The AV systems in all of these classrooms have the same design, look, and feel. That allows professors to teach in any classroom with AV tools that they know well. AV system uniformity also eases system maintenance.

Each standard classroom AV system is centered around a DTP® CrossPoint® 4K Scaling Presentation Matrix Switcher with built-in audio amplifier and control processor. AV content is displayed via either an 86" flat panel display or a projector, depending on the classroom design. The instructor uses a 7" TouchLink® Pro touchpanel to select among five HDMI inputs that include the instructor station PC, a document camera, a guest laptop, content from wireless devices delivered via a ShareLink® Pro 500, or video from an auto tracking PTZ camera.

Ceiling-mounted cameras capture the procedures taking place on the dissection stations.

Each dissection station includes a flat panel display that can show procedures performed at its own station, or any other station in either anatomy lab.

“The campus-wide standardization initiative focused on consistency. Instructors teach in multiple classrooms during a typical day. We want to provide them with a dependable and uniform AV experience in every room. We also leverage GlobalViewer® Enterprise to implement a strong AV management back-end to maximize AV system uptime.”

Shaun Hayes, CTS, ECP
Utah Tech University

Wireless mics allow instructors to reinforce their voices via a single ceiling speaker driven by the switcher’s built-in amplifier. A directional mic array in the ceiling picks-up room audio. Video and audio from the switcher and the directional mic are fed through an Extron MediaPort® 200 USB scaling bridge to the instructor station PC, which uses a conferencing application to connect to remote students.

Large Classrooms and Lecture Hall AV Systems Expand on Standard Classroom AV System Design

In keeping with the concept of commonality, large classrooms on the first, second, and third levels and an expansive lecture hall on the main level springboard off the same AV system design as the standard classrooms, augmented to accommodate larger square footage and increased occupancy.

The most noticeable scale-up from the standard classroom design in the large rooms are more projectors and flat panel displays. While staying with one PTZ camera, the large rooms have two ceiling-mounted directional mic arrays to cover the increased area. To make AV system control more convenient, there are two 7" Touchlink Pro touchpanels at opposite sides of the room.

To maintain sound intelligibility in large rooms, up to 12 ceiling speakers are used. These multiple speakers are driven by an XPA® 200-watt amplifier fed by an audio signal processor. The large rooms are also equipped with a presentation matrix switcher configured with more input and output ports.

AV-enabled conference rooms are strategically located throughout the SET building.

“End user feedback about the AV systems in both the SET building and the full campus retrofit is uniformly positive. The systems are reliable and provide a consistent user experience. The way I judge the effectiveness? Before the standardization on Extron we received dozens of support calls every week. Now our support call volume is down to five or less a week.”

Shaun Hayes, CTS, ECP
Utah Tech University

NAV Pro Allows Sharing Cameras and Flat Panel Displays in Anatomy Labs

Two combinable anatomy labs contain 16 dissection stations. Above each station, a video camera points down to capture anatomy details during dissections. An 86” flat panel display on the wall at the head of each table shows what the camera sees. A NAV® Pro AV over IP system allows video from any dissection station to be viewed on the display at any or all of the other stations in either lab, plus on four other 43" screens, including instructor stations in both labs. Everyone can view the activity at any dissection station without having to crowd around the station.

Replicating the standardized AV system design, the anatomy labs include ShareLink Pro 500’s for wireless content sharing from portable devices. They employ MediaPort 200 USB scaling bridges to deliver anatomy lab audio and video to remote students participating in lab sessions via conferencing applications. Wireless mics and a ceiling mounted directional mic array in each lab pick-up the instructor voice and room audio, delivered to a total of 10 ceiling speakers through an audio signal processor and an MPA 601 amplifier in each lab. Users control AV system functions, including AV over IP content routing, from a wall-mounted 7" TouchLink Pro touchpanel in each lab. A single IPCP Pro 250 control processor and a NAVigator AV over IP system manager control AV system configuration and signal routing in both labs.

Walls of glass provide students with quiet private spaces to study and collaborate while maintaining visual contact with the adjacent student lounge.

Conference Rooms & Study Rooms

Standard Conference Rooms: Three conference rooms with identical AV systems are available to staff and students on the second, third, and fourth levels. A DTP2 switcher selects between two HDMI sources connected via cables accessed through a Cable Cubby® in the conference table. Those in the room with portable devices can contribute AV content wirelessly via a ShareLink Pro 500. A DTP2 receiver supplies the selected video content to a 75" flat panel display and sends the audio content to ceiling speakers via an MPA 601 amplifier.

Dean's Conference Room: Located on the fifth level, the Dean's conference room duplicates the AV system design of the other conference rooms. However, the flat panel display size is increased to 86", and a UC camera, microphone, and video codec are added to equip the room for video conferencing.

Study Rooms: Eight small, private study rooms are conveniently located adjacent to the student lounges on the third, fourth and fifth levels. Each of these rooms is equipped with an HC 402 Meeting Collaboration System to facilitate idea sharing. When a presenter connects their laptop to the HDMI jack on the HC 402 system wallplate, the AV system powers-on, and the presenter's video and audio come through the room's 43" flat panel display. When the room is unoccupied, the AV system shuts itself off.

"She is a pretty thing! Wait until you see the inside. It's all about the things that students want. This isn't your parents' Science and Engineering Building. It's full of natural light and technology"

Utah Tech University Student
Comment on SET building ribbon cutting
Facebook post

RESULTS

The SET building opened to faculty and students October 2021, and immediately experienced heavy use. View a brief tour of the technology-rich spaces in the ribbon-cutting video on Facebook HERE*. Eric Pedersen, Dean of the College

*The Facebook video contains references to Utah Tech's previous name, Dixie State, before a rebranding that emphasizes the university's polytechnic academic mission.

of Science, Engineering, and Technology, noted during the opening ceremony, “Every square foot is designed for student experiences and learning. This building will provide many wonderful hands-on, career-oriented student experiences in science, engineering, and technology for decades to come, preparing students for their careers and for their lives.” A student comment posted on the building’s Facebook page echoes that sentiment, “It’s all about the things that students want. This isn’t your parents’ Science and Engineering Building. It’s full of natural light and technology."

FEATURED EXTRON PRODUCTS

Model	Description
DTP CrossPoint 86	8x6 Scaling Presentation Matrix Switcher
DTP CrossPoint 84	8x4 Scaling Presentation Matrix Switcher
DTP2 CrossPoint 82	8x2 4K/60 Scaling Presentation Matrix Switcher
DTP HDMI 4K 230 TX	DTP Transmitter for HDMI
DTP HDMI 4K 230 RX	DTP Receiver for HDMI
DTP2 T 212	Two Input 4K/60 HDMI Switcher with Integrated DTP2 Transmitter and HDMI Output
DTP2 R 212	4K/60 HDMI DTP2 Receiver and Switcher with Audio De Embedding
HC 402	Meeting Space Collaboration System
NAV E 101	1G Pro AV over IP Encoder - HDMI
NAV SD 101	1G Pro AV over IP Scaling Decoder - HDMI
NAVigator	Pro AV over IP System Manager
USB Extender Plus T	USB Extender Plus Twisted Pair Extender for USB Peripherals - Transmitter
USB Extender Plus R	USB Extender Plus Twisted Pair Extender for USB Peripherals - Receiver
MediaPort 200	HDMI and Audio to USB Scaling Bridge
ShareLink Pro 500	Wired and Wireless Presentation Gateway
MPA 601	Mono 70/100 V Amplifier – 60 Watts
XPA 2001	Mono 70/100 V Amplifier – 200 Watts
IPCP Pro 250	IP Link Pro Control Processor
TLP Pro 725T	7" Tabletop TouchLink Pro Touchpanel
TLP Pro 725M	7" Wall Mount TouchLink Pro Touchpanel
Cable Cubby 1202	Cable Access Enclosure for AV Connectivity, Remote Control, and Power

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