



CASE STUDY

University of Washington Tacoma Continues Long-Standing Reliance on Extron AV in Latest Campus Building

Extron



University of Washington Tacoma campus is located in downtown Tacoma. Milgard Hall was newly constructed amid a collection of historic brick warehouse buildings that were modernized to create a modern-day hub for learning.

“We've been an Extron campus for the entire 18 years that I've been with the University. When I started here, we were installing 406 switchers and button panels. We made the jump to DTP and XTP matrix switchers and TouchLink Pro touchpanels as soon as they came out. And we've stuck with Extron ever since, including Milgard Hall.”

Josh Carper
Computer Maintenance Technician III
University of Washington | Tacoma

The University of Washington (UW) Tacoma is a member of the Coalition of Urban Serving Universities, comprised of 42 public urban research universities in 24 states with a demonstrated commitment to their urban areas. It offers 60 undergraduate majors and 15 graduate schools of education, engineering, business, nursing, social work, criminal justice, and urban studies.

The 46-acre campus overlooking the Port of Tacoma and Mount Rainier is housed in century-old brick warehouse buildings harkening back to the area's history as a harborside railroad freight terminal. The buildings were meticulously renovated to preserve their historical significance, while upgrading them to modern learning spaces. The campus also includes newly constructed buildings, including: [Milgard Hall](#). Development of the Tacoma campus revived downtown Tacoma. Retail businesses, museums, and restaurants opened in the immediate area for the first time in decades, increasing foot traffic and transforming the formerly moribund area into a vibrant college town.

The campus encompasses over 115 learning spaces that are equipped with Extron-powered AV systems which help nurture cross-collaboration across all disciplines represented by UW Tacoma's seven schools.

CHALLENGES

Modernizing 100-Year-Old Buildings with AV-Enhanced Learning Spaces

When the permanent Tacoma campus opened in 1997, Joe Brawley, who was UW Branch Campus Projects Director at the time said, “What we have done is taken 19th century warehouses and turned them into 21st century academic



The High Impact Practices (HIPs) seminar venue on the ground level of Milgard Hall functions as a large classroom and community event space. The Association of American Colleges and Universities defines HIPs spaces as incorporating designs and practices in teaching and learning that increase student engagement.

“Our goal is to keep learning spaces productive 100 percent of the time. The best AV equipment for the job is reliable equipment that in-house personnel can install and maintain. With standardization on Extron, users and maintenance personnel are thoroughly familiar with the AV gear. Everyone is comfortable with the systems. We can also maintain a lean spares inventory. The result is time and money saved, benefitting all stakeholders.”

Joe Kapler
Computer Maintenance Technician III
University of Washington | Tacoma

space.” Six historic, semi-abandoned brick structures packed with rusty parts for WW II Jeeps and home to hundreds of pigeons were gutted, seismically upgraded, and wired for 21st century technology.

DESIGN SOLUTION

The fact that Extron equipment can be found in virtually all learning spaces on the Tacoma campus is the result of a methodical conversion to Extron over an 18-year period. Joe Kapler, Computer Maintenance Technician III, started installing CRT televisions and VCRs at the Tacoma campus in 1997, when they were considered the state of the art in audiovisual teaching aids. He’s well positioned to explain why and how UW Tacoma evolved into an Extron campus. He explains that as AV systems in classrooms became more sophisticated, they became more challenging for users to operate, requiring juggling separate remote controls and separate switching of audio and video signals.

When Extron introduced MediaLink® configurable controllers, Kapler saw the potential to simplify the AV user experience with the ease of pressing a couple of pushbuttons and he began installing them in classrooms. People loved it. As educational technology systems became bigger and more sophisticated, Tacoma classrooms migrated to IP Link® control processors

A wall mounted TouchLink touchpanel in the HIP seminar venue.



“Milgard Hall landed on the drawing board at just the right time. We took everything we’d learned while upgrading the AV systems in the historic existing buildings on the Tacoma campus and applied all of that experience to this brand-new teaching facility. Modern Extron AV systems deliver the collaborative capabilities that were one of the key design goals for this unique and beautiful structure. We’re pretty excited about the way it turned out.”

Paul Lovelady
Manager, Media Services, Information Technology
University of Washington | Tacoma

with TouchLink® Pro touchpanels to keep the user experience simple and intuitive. Then came ceiling mics augmented by Extron audio DSP, and presentation switchers that equip rooms with all-in-one AV capabilities of switching, video scaling, audio processing, amplification, and control in a single compact unit that helped meet design goals of standardizing AV rack heights.

UW Tacoma’s long history with Extron is a major reason why the school’s AV team specified Extron AV switching, distribution, control, and audio equipment for Milgard Hall. AV system design and installation for Milgard was performed by McKinstry Co., Seattle, which handled construction of the electrical, data, audiovisual, fire alarm, and access control systems.

Milgard Hall – New Construction with AV Integral to the Design

Within its three levels, the modern-construction 55,000 square-foot Milgard Hall houses elements of the School of Business, laboratory spaces supporting the School of Engineering and Technology, space for the Global Innovation and Design Lab, and a High Impact Practices teaching space. The building features shared classrooms, a computer lab, and shared collaborative spaces. These spaces enable interaction between the different academic programs, as well as the wider Tacoma community. Audiovisual amenities are everywhere.

High Impact Practices Seminar Venue

The HIPs room boasts a 220" main projection screen at the front, augmented by four 85" displays on the sidewalls. PTZ cameras on three walls capture room activity from multiple angles. A pro-grade audio system features wireless microphones and wall-mounted column array speakers. There

HIPs adjustable-height lectern with AV equipment bay housed in lower left cabinet enclosure.



HIPs lectern AV equipment bay contains AV program content sources and switcher that selects which sources to send to the room's screens.

are connector jack panels located throughout the room to plug in HDMI and SDI video sources, plus audio sources.

HIPs Lectern. The lectern contains a six input SW6 HD 4K PLUS switcher to select AV teaching content from a multitude of sources, including a PC, a guest laptop, a document camera, a wireless video receiver, a Blu-ray player, gooseneck microphone, and gooseneck webcam. Additional video and audio sources can supply content by plugging-in at a Cable Cubby® on the lectern work surface. XTP® transmitters and receivers make the AV connections for signals from the lectern to the control room main AV rack and vice-versa.

HIPs Control Room. A control room is located behind windows on the back wall of the HIPs room. For large-scale events, a technical director operates the AV system from a desktop 15" TouchLink® Pro touchpanel that controls AV system operation in the same manner and with the same user interface as a 10" touchpanel mounted on the East stage wall. The director also has a keyboard and mouse to interact with the control room PC to select AV content. A 55" display above the desk helps the director to see the program material going out to the room.

Behind the operator desk is an equipment rack housing an XTP II CrossPoint® 3200 populated with a variety of input and output boards that accommodate XTP, SDI, HDMI, and Dante AV signals coming and going not only from the lectern, but also from wall plates located on all four walls of the room and on the stage. The rack also contains other AV equipment, including an IP Link® Pro control processor for AV system control, an SMP 352 streaming media processor that captures AV sources

Classrooms 301 and 311 are each equipped with a projector and two flat panel displays.



The instructor desks in classrooms 301 and 311 include a PC, document camera, webcam, touchpanel, and auxiliary AV connector panel.

and presentations as recorded media and performs live or on-demand streaming.

Also in the rack are assisted listening RF and Wi-Fi servers that allow people to hear through facility-furnished receivers or their own smartphones. Wireless mic receivers allow multiple presenters to speak through lavalier or hand-held mics. A Dante audio DSP processor tailors audio characteristics for optimum intelligibility. Audio amplifiers drive the room's many speakers. There is also a base station for the room's extensive intercom system. Finally, the rack contains a control room PC to provide additional AV content, and an Ethernet switch central to the room's AV LAN.

Classrooms 301 and 311

These are the largest classrooms in the building, each seating 80 students. Identical AV systems in both rooms are built around an IN1808 eight input presentation switcher and a DMP 128 Plus 12x8 audio DSP processor equipped with AEC, VoIP, and Dante and augmented with an XMP 240 Dante expansion DSP processor that increases audio processing capability to 36 channels.

In each room, a laser projector and two 75" displays show video content sent to them by the switcher via DTP® connectivity. Two wall speakers in each room provide clear sound that is selected and processed by the DMP 128 Plus.

Available AV content sources include an instructor PC, a Blu-ray player, a document camera, a lectern-mounted webcam, a ceiling-mounted PTZ camera, a wireless video receiver, and an auxiliary HDMI input panel. Audio sources include dual wireless

Detail view of Extron equipment in classrooms 301 and 311 AV equipment racks.



Mobile AV equipment carts in labs on all three floors of Milgard Hall.

microphones, two ceiling-mounted directional array mics, and mic or line audio sources plugged into an auxiliary connector panel that also includes an HDMI port, an Ethernet LAN port, an AC convenience outlet, and a USB charging port.

AV system control is handled by an IPCP Pro 250 xi control processor, with a 10" TouchLink Pro touchpanel on the lectern providing the user interface.

Laboratories

All three floors contain labs. For students studying construction engineering, the first floor has a concrete lab and a combustion lab. On the second floor, there is a geotechnology/soils mechanics lab and a hydrology lab. Engineering majors experiment in the second floor biomechanics and robotics labs. The third floor includes an environmental/air quality lab for environmental science majors. The AV systems are housed in mobile carts.

The lab AV carts are built around an 8x4 DTP CrossPoint scaling matrix switcher with built-in audio DSP and built-in AV system control processor. Providing inputs to the switcher are a PC, a document camera, a wireless mic receiver, a wireless video receiver, a Blu-ray player, and webcam — all mounted in the cart. A wall mounted PTZ camera also feeds video to the switcher. DTP connectivity makes the video connection between the carts and two 75" wall mounted displays. Two wall mounted speakers are driven by an audio amplifier in the cart. Each cart has a network switch for connectivity to the building LAN and a 10" touchpanel atop the cart provides the AV operator interface.

The breakout rooms have scheduling panels at the entrances. Users see room availability via red and green backlighting. They can book rooms right from the panel, in addition to booking through the university's 25Live online reservation system.



“Our classroom AV designs aim to meet user expectations. They handle a full range of AV sources: lectern PC’s, guest laptops, Blu-ray players, document cameras, ceiling mics, and wireless sharing. Panopto lecture capture and distance learning via UC apps like Zoom is the norm. We spent a full summer retrofitting old buildings and classrooms to these standards, and we are still upgrading AV systems in two to three learning spaces each year.”

Paul Lovelady
Manager, Media Services, Information Technology
University of Washington | Tacoma

Breakout Rooms

The third floor includes six breakout rooms that are used for small meetings, collaboration sessions, and video conferencing. Supporting these rooms are minimalist, easy-to-use AV systems.

A 65" display occupies the front wall of the room. Under the display is an Extron SB 33A soundbar directly driven by audio from the display. A PC is mounted on the wall next to the display. A webcam, connected to the PC via USB is mounted in the soundbar camera shelf to enable video conferencing. The PC connects directly to the display via DisplayPort. The PC runs unified communications applications such as Zoom and Teams for meetings with remote participants.

The PC can supply audiovisual content to the display either from internal storage or from the university LAN. Also, the display's HDMI ports receive content from a visitor laptop and a wireless video receiver, allowing room occupants to contribute audiovisual content either hardwired or wirelessly.

All AV equipment is powered on and off manually from a single switch, and switching between the PC and the laptop is performed manually using the display's HDMI input selection control.

TouchLink TLS scheduling panels linked to CollegeNet 25Live® via Extron Room Agent™ software are installed at the doors of breakout rooms. Students and instructors can schedule time in the rooms via their PCs, mobile devices, or right at the TLS panels next to the doors.



Six breakout rooms on the third floor accommodate impromptu collaboration sessions and scheduled meetings.

Even More AV-Enabled Spaces

There are many more AV-enabled venues in Milgard Hall, a few briefly described below. For a full list with photos, AV equipment complements, AV operating instructions, and more, see the university's room [reservation page](#) and scroll to "Milgard Hall."

Small meeting rooms. There are meeting rooms, small conference rooms, study spaces, and interview rooms located throughout the building. These rooms are equipped with AV systems similar to the minimalist systems in the breakout rooms, slimmed down further in situations where room scheduling, video conferencing, and wireless sharing capabilities are not needed.

Large meeting spaces. An open assembly space and a large conference room on the second and third floors have AV systems similar to the 80-seat classrooms. IN1808 presentation switchers and DMP 128 Plus audio DSP processors form the backbone of the AV systems in these venues. A single 85" display replaces the multiple displays found in the classrooms, the sound systems have more speakers than used in the classrooms, and some AV teaching aids not essential to meeting applications are not included. The large conference room includes table array mics, USB, and HDMI connection points on the conference table, and TLS scheduling panels at the doors.

Computer Classroom. The computer classroom borrows from the HIPs AV system design. An 8x4 DTP CrossPoint presentation matrix switcher and a DMP 128 Plus audio DSP processor are key units. Similar to the HIPs space, there are ceiling mics and wireless mics, a Blu-ray player, document camera, PTZ camera, webcam, and a wireless video receiver. Two projectors with DTP connectivity to the matrix switcher display audiovisual content on 110" screens. Sound is provided by six SoundField® speakers.

Financial Wellness Trading Room. Located on the third floor, this room features a 75" display driven by a dedicated PC streaming the Bloomberg finance news channel. Accompanying this display are two other 75" displays plus a projector with a 110" screen, all receiving content via DTP connectivity from an 8x6 DTP CrossPoint presentation matrix switcher. Providing inputs to the switcher are a wireless mic receiver, a wireless video receiver, and two PCs. One PC is dedicated to video

conferencing and is supported by a webcam and two PTZ cameras. The other PC functions as an instructor PC, supplying teaching content from internal storage or from the university LAN. Audio is delivered by two wall speakers.

RESULTS

“Milgard Hall represents a space that welcomes students and community members alike and where business and industry can deepen partnerships,” says UW Tacoma Chancellor Sheila Edwards Lange. “In Milgard Hall, our students build better lives for themselves and their communities.”

The key goals for Milgard Hall’s contributions to the Milgard School of Business and to the STEM degree programs are articulated by Vann Smiley, former UW Vice Chancellor for Finance and Administration, in [this video](#).

In no small measure, the incorporation of audiovisual teaching and collaboration aids, anchored by Extron AV products in every corner of the building, allowed the university to meet the educational goals envisioned for Milgard Hall.

MILGARD HALL BUILDING VIDEO LINKS

All photos courtesy of University of Washington.

Videos courtesy of University of Washington and Design-Build Institute of America

Milgard Hall Construction Timelapse, click [here](#).

2023 Design-Build Project - University of Washington Tacoma Milgard Hall by Design-Build Institute of America, click [here](#).

UW Tacoma Room Reservation Page showing photos, AV equipment complements in all education spaces, click [here](#).

FEATURED EXTRON PRODUCTS

Model	Description
XTP II CrossPoint 3200	Modular Digital Matrix Switcher with SpeedSwitch® Technology
XTP T HWP 101 4K	4K HDMI Transmitter - Decorator-Style Wallplate
XTP R HD 4K	4K HDMI Receiver
DTP CrossPoint 84 4K	8x4 Seamless 4K Scaling Presentation Matrix Switcher
DTP CrossPoint 86 4K	8x6 Seamless 4K Scaling Presentation Matrix Switcher
IN1808	Eight Input 4K/60 Seamless Presentation Switcher
DTP HDMI 4K 230 Tx	DTP Transmitter for HDMI
DTP HDMI 4K 230 Rx	DTP Receiver for HDMI
SW6 HD 4K Plus	Six Input 4K/60 HDMI Switcher
USB Extender Plus Series	Twisted Pair Extender for USB Peripherals
SMP 352	Dual Recording H.264 Streaming Media Processor
DMP 128 Plus	12x8 ProDSP Audio DSP Processor AEC, VoIP, and Dante
XMP 240	Dante Expansion Audio DSP Processor
SF 26T	SoundField XD 6.5" Two-Way Ceiling Speaker
SB 33A	Adjustable Width Sound Bar
IPCP Pro 250 xi	IPCP Pro xi Control Processor
IPCP Pro 555	IP Link Pro Control Processor
TLP Pro 1025M	10" Wall Mount TouchLink Pro Touchpanel
TLP Pro 1025T	10" Tabletop TouchLink Pro Touchpanel
TLP Pro 1525TG	15" Tabletop TouchLink Pro Touchpanel
TLS 725M	7" Wall Mount TouchLink Scheduling Panel
Room Agent	Room Booking Software for Extron Room Scheduling
Cable Cubby 1202	Cable Access Enclosure for AV Connectivity, Remote Control, and Power
AAP 104	Four-Gang AV Connectivity Mounting Frame
AAP 301	Full-Rack Width, 1U AV Connectivity Mounting Frame

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