

Syracuse University Prepares Future Attorneys Using Extron FOX Fiber Optic Systems

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Michael O'Mara

Director of ITS Learning Environments and Media Production Syracuse University Dineen Hall is the new, five-story 200,000-square foot building at Syracuse University that houses the College of Law. Ranked as one of the top 25 most impressive law school buildings in the country, it connects education and technology in a myriad of ways. The university wanted Dineen Hall to feature facility-wide video broadcasting and control capabilities, as well as AV-equipped classrooms, collaboration rooms, and moot courtrooms for enhanced learning and real-world simulations. To enable this functionality, Waveguide Consulting designed an interconnected AV system using a wide gamut of products and technologies from Extron.

"In planning the AV for Dineen Hall, the biggest issue was finding a single vendor for whole-building and in-room AV signal routing, as well as system-wide control," says Michael O'Mara, Director of Information Technology Services (ITS) Learning Environments and Media Production at Syracuse University. "We turned to Extron for a consolidated package of fiber optic, twisted pair, and control products, and the excellent support that we are very familiar with."

The building includes lecture and seminar rooms, a 36,000 square foot library with distinctive collaboration spaces, a 350-seat auditorium, and rooms unique to legal instruction, such as moot courtrooms and a VTC interview workroom. The AV systems were designed to tie together and support these advanced learning environments, and provide a user-friendly interface for the instructors that is consistent from room to room.





The Extron FOX Matrix 14400 matrix switcher is at the core of the fiber optic backbone within Dineen Hall, sending video signals throughout the building.

Extron FOX® Series products form the fiber optic backbone, XTP Systems® provide AV signal switching and distribution within the academic and collaborative spaces, and TouchLink® and TouchLink Pro touchpanels enable in-room and enterprise-wide AV system control.

FOX Matrix for Enterprise-wide Operations

Dineen Hall's fiber optic infrastructure provides AV connectivity between sources in the centralized control room, each instructional room, and displays located throughout the facility. Rack-mounted devices such as satellite receivers with HDMI output and various other digital AV sources provide a portion of the content, while computers and portable devices offer supplemental video and other data on demand. The network plan called for singlemode cable, which allowed the sub-contractor to install both the network and AV infrastructures using the same cable. Fiber optics also ensured that the installation was immune to outside interference and did not interfere with other building systems, including the HVAC and emergency/security installations.

The university configured the Extron FOX Matrix 14400 modular matrix switcher with seven FOX I/O 1616 SM singlemode matrix boards for a 112x112 configuration. Extron FOXBOX transmitters provide long-haul extension of HDMI or VGA video and audio signals from the in-room sources. A FOXBOX SR HDMI receiver mounted with each projector and LCD flat panel display scales content to the optimal resolution of each sink device. An RS-232 port on each receiver enables the control room operator to monitor and control any display in the facility.

In-room AV Flexibility with XTP Systems

While each room is supplied with content from the central fiber system, these rooms can be operated individually over their own shielded CAT 6a twisted pair infrastructures. Waveguide selected Extron XTP CrossPoint 1600 matrix switchers for seventeen of the rooms for their modularity, support of local and remote devices, as well as their capability to extend signals up to 330 feet (100 meters) over one cable.

Configured with an appropriate mix of XTP twisted pair and HDMI input and output boards, the 16x16 matrix switcher supports local sources and other rack-mounted equipment. RS-232 inserted through the XTP CrossPoint[®] matrix switcher's Ethernet port enables control of the remote devices without requiring extra wiring.

Multiple Extron XTP T USW 103 switchers were installed in a variety of spaces, often mounted in lecterns or underneath tables, in order to provide convenient connectivity of resident computers, document cameras, Blu-ray players, along with other HDMI and VGA sources. The XTP Systems within the smaller Suntec Video Seminar room and the recording studio use four XTP T USW 103 switchers, while each of the larger courtrooms include eight of these switchers. Regardless of the size of the room, Dineen Hall's support staff appreciated the XTP T USW 103 for its versatility and capability to provide autoswitching between inputs for an unmanaged switching solution.

Waveguide specified Extron XTP SR HDMI scaling receivers to receive video from the matrix switcher and ensure that video is shown at the native resolution for each display device. These receivers, along with various other XTP extenders, are powered remotely by the XTP CrossPoint matrix switcher, which saved installation time as well as reduced labor and material costs.

TouchLink and IP Link Technologies for Precise Control & System Configuration

Rooms include one or more Extron TouchLink Pro or TouchLink® Series 10" tabletop touchpanels or the TLP 350MV 3.5" wall-mount touchpanel to provide easy selection of AV and computer sources. The physical size and primary function of the each space determined the size and number of touchpanels required to provide convenient control. Each TouchLink touchpanel is configured to operate the local AV sources and display devices, as well as access shared resources in the master control room. The 10" TouchLink Pro Series touchpanels were selected to suit the needs within the control room and high visibility locations such as the moot courtrooms.

Inside the courtrooms, each wall mount or tabletop TouchLink touchpanel works in conjunction with an Extron IP Link® or Pro Series control processor. Using the Global Configurator® Professional – GC Pro software, it was easy to load device drivers and assign IP addresses to the various devices.

The touchpanel user interface was customized to match the specific equipment and capabilities of each room using Extron GUI Designer combined with the GC Pro software. GC Pro facilitated rapid deployment of identical user interfaces in multiple rooms. TouchLink Pro touchpanels connect to either an Extron IPCP Pro 550 or IPL Pro S6 control processor. Aside from being more powerful than its predecessors, the IPCP Pro series features advanced security standards and Gigabit Ethernet. These control processors also provide a simple and intuitive interface for monitoring and managing the building's applications.





Each room's XTP CrossPoint 1600 routes AV and control signals between local and remote sources and displays.

XTP T USW 103 switchers were installed within lecterns and mounted underneath tables.

Courtroom AV Designed for Education

The XTP CrossPoint 1600 matrix switcher for each courtroom supports two AV system modes: Courtroom and Presentation. As an example, when the 350-seat auditorium is configured as the Melanie Gray Ceremonial Appellate Courtroom, the AV system is set to Courtroom. This mode is designed to assist students in understanding how to analyze and argue both sides of a hypothetical legal issue using procedures modeled after those employed in state and federal appellate courts. As with the other installations at Dineen Hall, the matrix switcher sends audio signals to one or two Extron XPA 2001-70V amplifiers for distributed sound reinforcement. XTP SR HDMI scaling receivers accept AV and control signals for the workstation monitors and the flat panel displays, ensuring visibility within the immediate courtroom setting as well as for the observers.

Content is available from remote resources, such as VTC feeds, along with workstations, which include keyboard-video-mouse – KVM support using Extron USB Extender Plus transmitters and receivers. Access to the VTC source also allows remote selection among the room's six PTZ cameras. A Mediasite recording system captures the moot sessions. Monitors at the judge's bench, attorney tables, and the witness stand offer annotation capabilities as well.

Courtroom workstations with AV equipment or displays include the judge's bench, the clerk's desk, the witness stand, the prosecution and defense tables, and the jury box. Two separate rooms are reserved for the judge's chambers and the jury deliberation room. Each workstation offers AV functionality specific to the required tasks for that position. In-room source content is selectable from any unlocked workstation.

With complex AV routing, Extron 10" TouchLink touchpanels provide students and staff with the appropriate levels of AV system control. This

can include sending the same content to all displays, muting video or audio - individually or by zone, grouping wired and wireless microphones, and adjusting lighting levels. Although the interfaces on the judge's and clerk's touchpanels are mirrored, the judge's bench is the primary point of AV system control. This particular touchpanel can be used to grant access to any combination of workstations or lock out all other points of control, including the projection booth. The lectern's touchpanel is automatically locked out and remains so while the auditorium is configured as a courtroom.

In Presentation mode, the lectern becomes the primary point of control. The TouchLink touchpanels at the judge's bench, clerk's desk, and attorney tables are automatically locked out, and the workstation monitors are muted. The projection system is the main display, with the projection screen dropping down in front of the judge's bench. The projection booth at the top of the stadium-style room provides backup AV system control. The system operator also manages the VTC system, making and receiving calls as well as sharing that source, and can select among the PTZ cameras for codec during a presentation.

Comprehensive Facility Control Using GVE

The support team monitors all AV systems within Dineen Hall at the master control room's multiple workstations and flat panel displays, which includes a 2x2 videowall. Four Extron ISS 506 Six-Input Seamless Switchers scale 1080p, composite, S-video, component, and RGBHV source signals to the optimal resolution for each display device. To support the videowall, an Extron MGP 464 Pro accepts graphics and video content from one or more sources, scaling the image up to 2K. When a source provides protected content, Key Minder[®], an included Extron technology, authenticates and maintains continuous HDCP encryption between devices.



The judge's TLP Pro 1020T TouchLink Pro 10" touchpanel is the main point of control when the auditorium is configured as the Melanie Gray Ceremonial Courtroom.

Extron's GlobalViewer Enterprise – GVE provides centralized control of the building's AV systems. This server-based AV resource management software allows a system operator to monitor and control AV routing and presentation from the master control room. GVE also enables enterprise-wide scheduling and help-desk functionality to assist the Dineen Hall instructors. "Extron control systems are our university standard, and integrating Dineen Hall's control system into our existing GVE system was as fast and easy as we had anticipated," says O'Mara.

Dineen Hall Judged a Complete Success

The university administration states Dineen Hall brings the entire College of Law into one inviting space, creating a real community of legal instruction. By design, the AV systems enhance the feeling of energy rather than the anxiety that can be associated with higher learning.

"When developing the plans for Dineen Hall, we knew that this was an opportunity to invest in the technology needed to deliver the best legal education now and for the years to come," says Ronald Denby, Assistant Dean for Information Technology, Student Administration and Facilities at Syracuse University College of Law. "We evaluated the classroom technology based on what would provide our faculty with the tools they needed the most to ensure a rich, fulfilling student experience. The feedback we've received from both the students and the faculty is that the technology provides an inviting, constructive environment that truly fosters learning and collaboration."

The wide range of offerings from Extron suited the university's requirement to procure AV equipment from a single source while supporting the various needs within each space.

"Extron has been a great partner for Syracuse University," says Michael O'Mara of Syracuse University. "They always go the extra mile in every aspect of a project, from design through service after the installation, and I'm happy this project was possible with their support and expertise."

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