



Photo: Joshua N. Brown

## Modesto Junior College Enhances Nursing Education Facilities with Extron

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**Scotty Gonser**  
Instructional Support Specialist  
Yosemite Community College District

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Modesto Junior College in California's Central Valley serves more than 25,000 students across its 4,000 square mile district. With two campuses and 20 community sites, the college has long utilized video to bring local and remote students together for instruction. As part of California's 112-campus Community College System, Modesto Junior College is at the forefront of health-care education, as well as providing continuing education for health-care professionals at community hospitals throughout the region.

When the college started planning Glacier Hall, its new 38,000 square foot Allied Health facility, the primary goal was to provide nursing students with a unique, active learning experience focused around a state-of-the-art Human Patient Simulation Center. The Simulation Center is based on the design of a hospital ICU, where instructors control lifelike wireless mannequins that simulate real-world patient treatment scenarios. Student sessions are captured with an advanced AV recording system, and then reviewed with the instructor as part of a debriefing exercise afterwards.

To aid instructors in delivering effective lessons, Modesto Junior College planned AV systems throughout the Simulation Center, as well as in nearby lecture halls and classrooms. The college worked with technology consultant Charles M. Salter Associates and AV integrator CompView Audio Visual who selected Extron switching and distribution products, audio amplifiers, and TouchLink®-based control systems for the project.



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INTERFACING, SWITCHING AND CONTROL



In the observation room of the Simulation Center, instructors can observe and interact with students as they complete various procedures on the human patient simulators, while technicians record the exercises. Photo: Joshua N. Brown

### AV Needs

To serve the Simulation Center's four simulation hospital rooms, the observation room, and a debriefing room, a highly flexible AV routing and distribution system was of paramount importance to the instructional staff. The AV system needed to allow the instructors to quickly and easily set up and monitor patient simulations from a station in the observation room, and interact with the student during the session. At the same time, the staff required an AV recording system to capture the simulation exercises so that they can be played back at the debriefings between the student and instructor. The recordings are also stored for on-demand access at a later time.

In addition, the college wanted the AV system in the 100-seat lecture hall and smaller classrooms to be fully integrated with videoconferencing equipment, which is essential for remote student participation. The ability to record lectures was also a requirement, to better support students who watch lectures online. Finally, the college wanted the AV control systems to give technicians the ability to control and monitor audiovisual equipment from their stations, while also providing instructors with an intuitive control interface at their desks.

### Simulation Center

The observation room in the Simulation Center allows instructors to observe and interact with students as they complete exercises, which may include routine or emergency scenarios, in each of the four simulation rooms. During the exercises, the instructor can talk with the student via an intercom system, or act as the patient and communicate with the student via the simulator microphone and loudspeaker.



A TLP 350CV 3.5" Cable Cubby TouchLink Touchpanel in the debriefing room allows instructors or students to easily operate the room's AV equipment, while a Cable Cubby enclosure provides convenient access to additional system connectivity. Photo: Joshua N. Brown

The technician monitors wall- and ceiling-mounted PTZ cameras and manages the AV recording system to capture all aspects of the exercises, previewing the content on a quad-monitor setup.

For ease of access to AV cables and optimum cable management, CompView installed Extron Cable Cubby Cable Access Enclosures in the instructor stations. Extron P/2 DA4xi Four Output VGA Distribution Amplifiers distribute the video signals from the instructor's laptop that



The AV systems in both lecture halls offer flexible AV switching for presentation and camera sources, integration with lecture recording and videoconferencing systems, along with intuitive system operation at the technician's station and instructor's desk via TLP 700TV and TLP 350MV touchpanels. Photo: Joshua N. Brown

is used to set up and run the patient scenarios, and additional sources to the displays in the simulation rooms, so that students can view the patient's vital signs and other details.

To simplify signal routing for low-resolution cameras in the simulation rooms and computer-video sources such as the instructor's laptop, VGA signals are scan-converted. This allows all sources to be switched to the AV recording system through Extron MAV 84 AV 8x4 composite video and audio matrix switchers. For a robust signal path and secure cable connections, CompView chose Extron DVI Twisted Pair Extenders to send video signals over shielded CATx cable from the recording system to flat-panel displays at the instructor stations.

In a nearby debriefing room, the student and instructor later meet to review the exercise and discuss the instructor's recommendations and other critical points of the lesson. HDMI, analog video, and audio connections are available through a Cable Cubby enclosure to easily connect a laptop or other AV device to the room's flat-panel display. An Extron HDMI 101 Plus mounted near the display equalizes the incoming HDMI signal for optimum signal quality after a long cable run.

### Classrooms and Lecture Halls

Glacier Hall includes several classrooms and two lecture halls, which offer videoconferencing capabilities with a sister campus located about an hour's drive from Modesto. When presenting in the classrooms, instructors use a document camera, resident PC, or other source connected through AV connections in a Cable Cubby enclosure at their desks. An Extron RGB-HDMI 300 A scaler and an Extron SW4 HDMI

Four Input HDMI Switcher provide signal conversion and switching, respectively, for the AV presentation devices.

The videoconference classrooms also include a wall-mounted PTZ camera in the back of the room. An Extron DVI DA2 Two Output DVI Distribution Amplifier enables the instructor to preview the presentation on a local display, while students view the material through the room's projector. The integrator installed SW4 HDMI switchers in these rooms to provide AV switching for the AV presentation sources, similar to their standard classrooms. The video signal is distributed to the conferencing system and the projector using an Extron DVI DA4 Four Output DVI Distribution Amplifier.

Both lecture halls deliver similar capabilities as the VC classrooms, and also provide a ceiling-mounted camera above the teaching station that allows the instructor to present a magnified view of demonstrations on the human patient simulator. High-definition PTZ cameras equipped with HD-SDI cards are mounted on the back, front, and side walls to capture different viewing angles of the class. CompView selected an Extron BBG 6 A Blackburst, Color Bars, and Audio Generator to provide a broadcast quality NTSC blackburst signal that allows the cameras to be genlocked to a common reference signal.

Signals from the cameras are converted to HDMI and switched along with other HDMI and DVI sources through an Extron DXP DVI Pro Series 8x8 matrix switcher to two projectors and a flat-panel display. "The DXP matrix switcher gives us the flexibility to route any source to any output destination using the TouchLink touchpanel in the room

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or the unit's front panel," says Scotty Gonser, Instructional Support Specialist for the district's Allied Health Department. "It eliminates the need for a technician to change any wiring to or from the unit whenever a source is to be shown on a different display." CompView also used a range of Extron twisted pair transmitters and receivers to extend video signals throughout the classroom and lecture hall AV systems.

No AV system is complete without audio, so CompView used Extron HAE 100 HDMI Audio De-Embedders to facilitate the integration of HDMI audio into the classroom audio systems. For amplifying voice and program audio content in the classrooms and lecture hall, the integrator chose a range of ENERGY STAR® qualified Extron power amplifiers. An Extron XPA 2001-70V Two Channel, 70 Volt Amplifier provides 200 watts for a distributed system using ceiling speakers in each VC classroom. The sound reinforcement system in each lecture hall includes an Extron XPA 2003C-70V Three Channel, 200 Watts per Channel, Combo Amplifier that accepts audio signals and delivers 200 watts of power to a pair of left and right program speakers, plus a 70 volt line for ceiling speakers.

### Convenient AV System Control with TouchLink

Extron TouchLink-based control systems greatly simplify AV system operation for instructors and technicians. Instructors can easily switch between sources and operate the AV presentation system using an Extron TLP 350MV 3.5" TouchLink Touchpanel conveniently mounted on their desks in Extron SMB 303 Surface Mount Boxes. The TLP 350MV in each lecture hall also provides the instructor with the flexibility to select between different views from the ceiling-mounted camera and choose which projector will display the content.

In the back of each lecture hall, a technician uses an Extron TLP 700TV 7" TableTop TouchLink Touchpanel to control and manage the AV recording and videoconference systems. The technician is able to switch between presentation and camera sources, raise or lower projector screens, power displays on or off, and adjust audio levels or mute microphones as necessary. CompView combined classroom TLP 350MV touchpanels with Extron IPL T S2 IP Link® control processors, while touchpanels in the lecture halls are paired with Extron IPCP 505 and IPL T CR48 IP Link control processors.

For the observation room in the Simulation Center, CompView mounted an Extron TLP 700MV 7" TouchLink Touchpanel on one of the equipment racks and paired it with an Extron IPL 250 IP Link control processor. The touchpanel enables technicians to select from a number of camera presets that CompView configured, such as wide angle or close up views of specific areas in each simulation room. A



The TLP 350MV, mounted on the instructor's desk using an optional SMB 303 Surface Mount Box, also allows for easy selection of which overhead camera view to display on either of the projectors. Photo: Joshua N. Brown

technician can access other AV functions for the recording system, plus recording and intercom audio level adjustments. The AV system in the debriefing room is easily controlled with a TLP 350CV 3.5" Cable Cubby TouchLink Touchpanel, in conjunction with an IPL T S2 control processor.

Technicians at the district use the Extron Free GlobalViewer® Web-based AV resource management and remote control application to remotely monitor classroom and Simulation Center AV systems, and control the AV equipment if necessary. GlobalViewer also enables the technicians to keep track of maintenance items such as lamp life. "We're a huge Extron house and one of the reasons is Free GlobalViewer Software," says Gonser. "It's just amazing that, wherever I may be, I can log in to a classroom system through GlobalViewer and help the instructor if they have any kind of problem."

### Results

The faculty and administrators are impressed with the functionality of these new, state-of-the-art rooms. The AV systems fulfill the college's need for flexibility, reliability, and ease of use. In addition, the use of these systems help enhance the learning experience for students. "Local hospitals are very pleased with the students they receive from this program and are impressed with the quality and technological expertise of this program," says Gonser.

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