CASE STUDY

Extron AV Technology Helps Oakland Community College Train Michigan's Next Generation of Top Chefs

Extron

Video screens are prominent in public spaces: (Below) in the Seasoned Oak Restaurant and (Right) in the atrium stairway leading to the second and third floor Flex Zones.

Oakland Community College (OCC) is one of Michigan's largest community colleges and a top transfer institution. It offers 100+ certificate and degree programs in a variety of in-demand fields. Among those are the culinary arts, which moved into a new, state-of-the-art Culinary Studies Institute building that opened in the fall of 2025. Students seeking careers in the food service industry can obtain the knowledge and experience they need in a Culinary Arts program accredited by the American Culinary Federation. The curriculum prepares students to become executive chefs with industry experience. In addition to hands-on cooking and baking coursework, students learn about guest services, cost analysis, menu development, wine and spirits, and event planning.

The three-story 78,000 square-foot Culinary Studies Institute building on the Royal Oak campus features three classrooms, two demonstration kitchens and five teaching kitchens, giving students access to the most up-to-date culinary learning facility in Southeast Michigan. A restaurant on the third floor offers the community a new dining destination where culinary students prepare and serve fine-dining recipes as part of their training.

Chefs train students in demonstration and teaching kitchens equipped with live-streaming instructional video technology. That AV technology also links the teaching and learning spaces to kitchens around the world via the Internet for academic conferences and national culinary competitions. Extron AV products are key to the innovative instructional technologies that make OCC Culinary Studies Institute a standout training ground for today’s and tomorrow’s master chefs.

AV equipped teaching kitchens. Ceiling PTZ cameras capture video of instructor demonstrations, which is shown on the flat panel displays around the room so that students at their workstations can follow along to emulate the instructor's techniques. NAV E 201 D wallplate encoders connect the PTZ cameras to the AV over IP network.

CHALLENGES

OCC leadership recognized that the legacy culinary studies teaching location at OCC's Orchard Ridge campus was too small to handle the volume of students applying to attend classes there. They also recognized the Royal Oak campus was situated in a vibrant dining and entertainment mecca.

A decade of planning went into constructing a new home for the Culinary Studies Institute on OCC's Royal Oak campus. Building design began in 2020. By fall 2025, construction was complete and the teaching kitchens opened to students. The new building is designed from the ground up with flexible and scalable audiovisual technology that supports learning and collaboration on every floor. Supporting these goals, Extron NAV® Pro AV over IP routes every source to every destination over a dedicated 1 Gbps AV network that includes AES67 digital audio.

"The innovation and the technology in this building is second to none. Everything in this building is connected through technology. Our demonstration classrooms and teaching kitchens are all equipped with live-streaming capabilities. So every educational lesson can be shared, recorded, and archived. All of our spaces are connected, very much like our chefs are connected and our students are connected. Which brings effective teaching and learning together. We are literally wired for success."

Cindy Carbone
Dean of Communication, Arts and Humanities
Oakland Community College

DESIGN SOLUTION

The Detroit office of architectural firm HED, located in Royal Oak directly across the street from the new Culinary Studies Institute building, worked with Michigan-based pro AV integrator National Communications Corporation to design and install the AV systems. Over 100 NAV AV over IP endpoints service various teaching kitchens, demonstration classrooms, lecture classrooms, offices, and public banquet and restaurant spaces. The endpoints are interconnected over four AV LANs operating through seven Ethernet switches, all connected to the campus enterprise network backbone.

Teaching Kitchens

There are four teaching kitchens, two on the second floor, and two on the third floor. On each floor, one kitchen is equipped with refrigerated prep tables where ingredients are cleaned, trimmed, sliced, etc. The other kitchen is equipped with

Lecture classrooms (below) are directly adjacent to demonstration classrooms (right) to put book learning into practice immediately.

cooktops and ovens where students gain experience baking, broiling, roasting, grilling, frying, boiling, etc.

Video in the Teaching Kitchens. All four kitchens are equipped with PTZ cameras and 50" flat panel displays to capture and show instructor cooking demonstrations and the activity of students attempting to duplicate the techniques. The quantity and positioning of the cameras and displays varies with the kitchen configurations, ranging from a minimum of one PTZ camera and three displays in Kitchen-1 to a maximum of nine PTZ cameras and four displays in Kitchen-3. The instructor station in all four kitchens includes an HDMI connection, allowing instructors to screen presentations from their laptops. The PTZ cameras and laptops feed HDMI content into the AV over IP network via NAV E 201 D wallplate encoders. NAV SD 101 scaling decoders provide the flat panel displays with HDMI from the network.

Audio in the Teaching Kitchens. Head-worn microphones and bodypack wireless mic transmitters provide a hands-free way for instructors to describe what they are doing as they demonstrate cooking techniques. Wireless mic receivers located in the AV racks on each floor of the building send the mic audio to DMP 64 Plus audio DSP processors, which sweeten the sound from the mics and program audio from instructor laptops and other sources for optimum intelligibility. The DSP processors output AES67 digital audio that is routed through the network switches to NetPA U 1002 power amplifiers. The amplifiers drive SF 26CT SoundField® ceiling speakers. The audio system delivers the instructor commentary clearly to students' ears amid bustling kitchen clatter.

Cake decorating techniques taught in demonstration classroom are captured by ceiling-mounted PTZ camera for viewing on the flat panel displays.

Classrooms

Students learn the basics through lectures in three classrooms, reinforced by instructor demonstrations in two adjacent demonstration classrooms. two nearby Flex Zones provide general meeting space. AV in all classrooms is connected to the AV over IP network.

Lecture Classrooms. Instructors deliver lectures in traditional AV-equipped classrooms. The AV systems in these rooms accept HDMI audiovisual lesson material from a desktop PC, a laptop PC, and a document camera. An IN1804 four input scaling switcher selects between these sources. The selected material is routed through a NAV E 101 encoder to the AV over IP network, which delivers the video to a projector for display on the classroom's projection screen.

Program audio is routed over the AV over IP network to a NetPA U amplifier and played through SF 26CT ceiling speakers. The small room size and quiet classroom environment eliminates the need for instructor microphones used in the noisier kitchen spaces. After the "chalk-talks", students and instructors move to the demonstration classrooms to put what they just learned into practice.

Demonstration Classrooms. Demonstration classrooms are located close to the lecture classrooms. The demonstration classrooms are mini versions of the teaching kitchens with smaller versions of food preparation stations and cooking appliances. The AV systems are scaled-down versions of those in the teaching kitchens. Each demo classroom has two PTZ cameras and four flat panel displays. The instructor stations have HDMI connections for two laptop PCs.

"This facility makes us more competitive. We have the premier culinary teaching facility in Michigan. It's cutting-edge and truly reflects the talent of our faculty and students. To have the best of the best equipment, all the bells and whistles, really allows us to show students where the industry is headed and is the wave of the future."

Chef Doug Ganhs CEC
Culinary Department Chairman and Instructor
Oakland Community College

The Seasoned Oak restaurant offers a fine dining experience to guests, while providing the student waitstaff and kitchen staff with on-the-job experience. AV amenities include a large projection screen at the front of the room.

NAV E 201 D wallplate encoders provide the PTZ cameras and laptops with connections to the AV over IP network and NAV SD 101 scaling decoders connect the flat panel displays to the network. The audio setup is identical to the teaching kitchens, with wireless mics and program audio connected through DMP processors, amplified by NetPA U amplifiers, and played over SF 26CT ceiling speakers.

Seasoned Oak Restaurant

On the third floor, the Seasoned Oak Restaurant offers guests a fine-dining experience with views of downtown Royal Oak. This student-operated venue is both a teaching space and a dining destination, where OCC Culinary Arts students craft and serve dishes under the guidance of professional chef instructors.

The restaurant is equipped with a projector and large motorized projection screen that is used to display ambiance images, informational messaging, and meeting presentations. The projector is connected to the AV over IP network through a NAV SD 101 scaling decoder. To accommodate presentation sessions, a NAV E 201 D wallplate encoder is located in the restaurant, allowing a laptop HDMI port to connect to the AV over IP network to show presentation material. Presenters can talk through wireless hand-held or beltpack microphones, a wired microphone connected through an AXI 22 AT D audio interface wallplate, or via Bluetooth connectivity from a smartphone or other personal device. All audio is routed through the AV over IP network, processed by a DMP processor, amplified by a NetPA U amplifier, and played through SF 26PT pendant speakers that fit in with the modern architectural style of the room's pendant lighting.

Second floor Flex Zone with two projectors and two projection screens, plus videowall in the stairwell.

Flex Zones

AV-equipped Flex Zones are available on the second and third floors, where people meet, collaborate, and share ideas through discussions enhanced by PowerPoint and video presentations.

The second floor Flex Zone is the larger of the two. It includes two NAV E 201 D wallplate encoders, where HDMI from two laptops can connect. Two lift-mounted retractable projectors, fed HDMI by NAV SD 101 scaling decoders, lower from the ceiling to display video on motorized screens. A wired hand-held microphone as well as head-worn wireless mics are available to accommodate varying presentation styles. Similar to other rooms, the mic audio and program audio are DSP-processed and converted to AES67 digital audio by a DMP processor, routed by a network switch, and amplified by a NetPA U amplifier. The sound comes through SF 26CT ceiling speakers.

The third floor Flex Zone AV setup is similar to the second floor Flex Zone, with fewer components commensurate with the smaller room size. It has one, instead of two, laptop HDMI inputs. The display is an 86" flat panel instead of a projector. And there are fewer ceiling speakers to cover the smaller space. Presenters still have their choice of wireless mics and a wired hand-held mic.

AV racks are located in telecommunications rooms on each floor of the building.

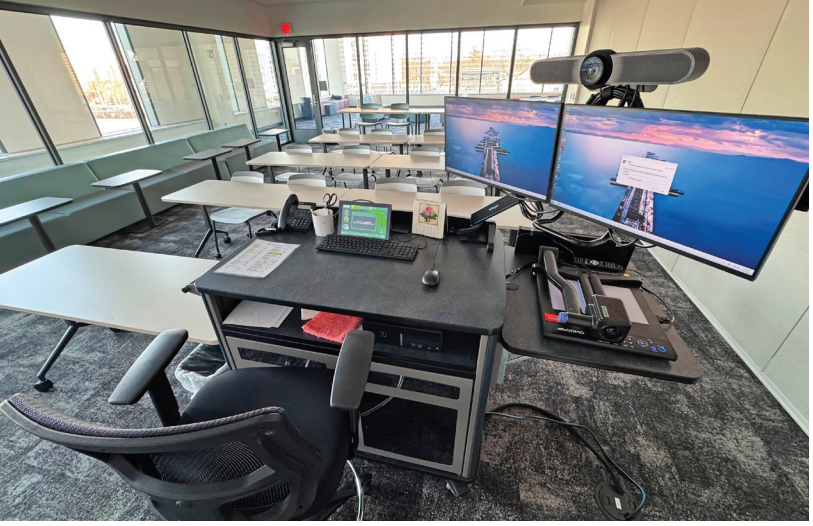
Lobby and Retail Space Digital Signage

The lobby and a retail sales space containing a snack bar with informal seating each contain 85” flat panel displays showing digital signage content. The content is created, scheduled, and delivered by digital signage content management software (CMS). The content is stored and played from dedicated digital signage players.

Content Streaming

Six SMP 111 single channel streaming media processors are connected to the AV over IP network. Each SMP 111 can simultaneously record and stream AV content from lectures, demonstrations, or special events originating from any source endpoint on the AV over IP network.

Recordings can be saved to SMP 111 internal storage and can also be stored to removable USB drives when users wish to “capture and carry” lectures or other instructional material. Lesson content is streamed from the SMP 111 units to remote students live via Zoom and live or on-demand via the school’s Brightspace® content management platform.



Touchpanel GUIs provide an intuitive user interface for operating the AV systems. The Extron Control App wirelessly mirrors touchpanel GUIs to portable Apple iOS or Android devices, allowing instructors to control the AV system from anywhere in the room.

"The integration of audiovisual technology is a huge advantage. It gives us tools to advance our teaching and learning—the potential is phenomenal. With this Extron technology, we can record, archive, and share lessons in ways that make teaching and learning more effective"

Greg Stroker
Member of the Culinary Faculty
Oakland Community College

AV System Control

A NAVigator Pro AV over IP system manager is used for initial setup, maintenance, control, and updates to the NAV Pro AV over IP system.

Three IPCP Pro 250 xi control processors take care of AV system control across the three levels of the building. An IPL EXP RIO8 expansion interface unit provides relays that control the motors that raise and lower projection screens and ceiling projector lifts. Users interact with AV systems using a variety of touchpanels. The classrooms are equipped with 7" tabletop TouchLink® Pro touchpanels. In the Flex Zones and in the Seasoned Oak restaurant, 10" wall mount TouchLink Pro touchpanels provide the AV system user interface. The intuitive touchpanel GUIs were designed and implemented with GUI Designer and Global Configurator® Professional.

In the teaching kitchens, users operate the AV systems from mobile wireless tablets that mirror the TouchLink Pro touchpanel GUIs. The tablets provide flexibility in these fast-paced, high-activity settings, controlling the AV systems on-the-fly from anywhere in the room.

RESULTS

According to the National Restaurant Association, food service and restaurant workers account for 10% of all workers in Michigan. Demand for culinary professionals is on the rise. An estimated 32,000 more workers will be needed nationally in this industry by 2029.

The Culinary Studies Institute prepares students to become innovative leaders through immersive education, community engagement, and strong industry partnerships in the culinary arts field. This mission got a much-needed boost with the Fall 2025 opening of the Institute's new Royal Oak home.

The OCC Culinary Studies Institute offers educational pathways to a range of culinary arts specializations.

Students can pursue hands-on studies through four American Culinary Federation-accredited programs:

- Culinary Arts Degree
- Baking and Pastry Arts Certificate
- Hospitality Management Certificate
- Food Service Foundations Certificate

In addition to preparing aspiring chefs, guest services professionals, and event planners for rewarding careers, the Institute's Community Education program offers culinary classes for people of all ages, ranging from cookie decorating for kids, to wine tasting for adults.

Instructors at the institute recognize that audiovisual teaching aids designed into the new building with help from Extron can give students clear views of cooking techniques. Whether observing lecture slides in classrooms, or live kitchen demonstrations, everyone has a clear view thanks to cameras, multiple screens, and streaming video over the Internet.

"The integration of audiovisual technology is a huge advantage. It gives us tools to advance our teaching and learning—the potential is phenomenal," says Greg Stroker, member of the culinary faculty. "With this technology, we can record, archive and share lessons in ways that make teaching and learning more effective."

FEATURED EXTRON PRODUCTS

Model	Description
NAV E 101	1G Pro AV over IP Encoder - HDMI
NAV E 201 D	1G Pro AV over IP Encoder - HDMI – Decorator-Style Wallplate
NAV SD 101	1G Pro AV over IP Scaling Decoder - HDMI
NAVigator	NAV System Manager
NAV LinkLicense	LinkLicense to support 240 endpoints
IN1804	Four Input 4K/60 Seamless Scaling Switcher
SMP 111	Single Channel H.264 Streaming Media Processor
DMP 64 Plus C V AT	6x4 Digital Matrix Processor w/ AEC, VoIP, and Dante
NetPA U 1002-70V	Two Channel Power Amplifiers with Dante and DSP 100 Watts Per Channel
NetPA U 2002 SB	Two Channel Bridgeable Output Amplifier with Dante and DSP 200/400 Watts Per Channel
AXI 22 AT D Plus	2 Input, 2 Output Dante Audio Interface - Decorator-Style Wallplate
SF 26CT	SoundField XD 6.5" Two-Way Ceiling Speaker
SF 26PT	SoundField 6.5" Two-Way Pendant Speaker
IPCP Pro 250 xi	Pro xi Control Processor
IPL EXP RIO8	Control System I/O Expansion Interface
TLP Pro 725T	7" Tabletop TouchLink Pro Touchpanel
TLP Pro 1025M	10" Wall Mount TouchLink Pro Touchpanel
Extron Control App	Control App for TouchLink, eBUS, Network Button Panels, and MediaLink
Global Configurator Professional	Powerful Configuration Software for AV Control Systems
GUI Designer	Free Design Software for User Interfaces

OAKLAND COMMUNITY COLLEGE VIDEO LINKS

Click Here to view a YouTube rebroadcast of the WJBK-Detroit PBS documentary, “City of Chefs.” OCC’s Culinary Studies Institute is featured at 49:55.

Click Here to view a whirlwind grand opening tour of OCC’s Culinary Studies Institute recorded by an OCC student social media influencer.

Photos courtesy of Oakland Community College.

Extron

www.extron.com/education

Follow us on: