



UNIVERSITY OF CENTRAL OKLAHOMA
Information Technology

Multimedia Standards

This document outlines the multimedia standards for the University Of Central Oklahoma (UCO). For questions regarding these requirements, please contact the UCO Office of Information Technology at 405.974.2688.

The Office of Information Technology (OIT) has the responsibility of design, development, approval, installation, maintenance and management of enterprise multimedia solutions in all UCO owned and leased buildings and properties. This would include but is not limited to performance and event venues, conference rooms, and instructional spaces along with control systems, AV wiring and installation, network connectivity, displays, digital signage, video conferencing, web conferencing, streaming, audio and video equipment. Such responsibility implies a first right of refusal by OIT on all A/V and multimedia design, development, approval, installation, maintenance and management.

OIT works closely with many departments at UCO to assure that this mandate is carried out. We do this in two main ways.

1. OIT, in conjunction with UCO Facilities and UCO Architectural and Engineering Services, review design documents in several phases of completion to assure their compliance to local and national standards and codes. Typically, schematics, design development, 50% and 100% drawing are all reviewed and input on changes are implemented throughout the process.
2. Design professionals, departments and electrical engineers have ready access to this standard to reference when questions or conflicts should arise in any construction or renovation process. Through close interaction during the design of new projects, the review of renovation projects and future campus planning the entire design team assures that uniform, cost effective and high quality multimedia solutions are consistently installed.

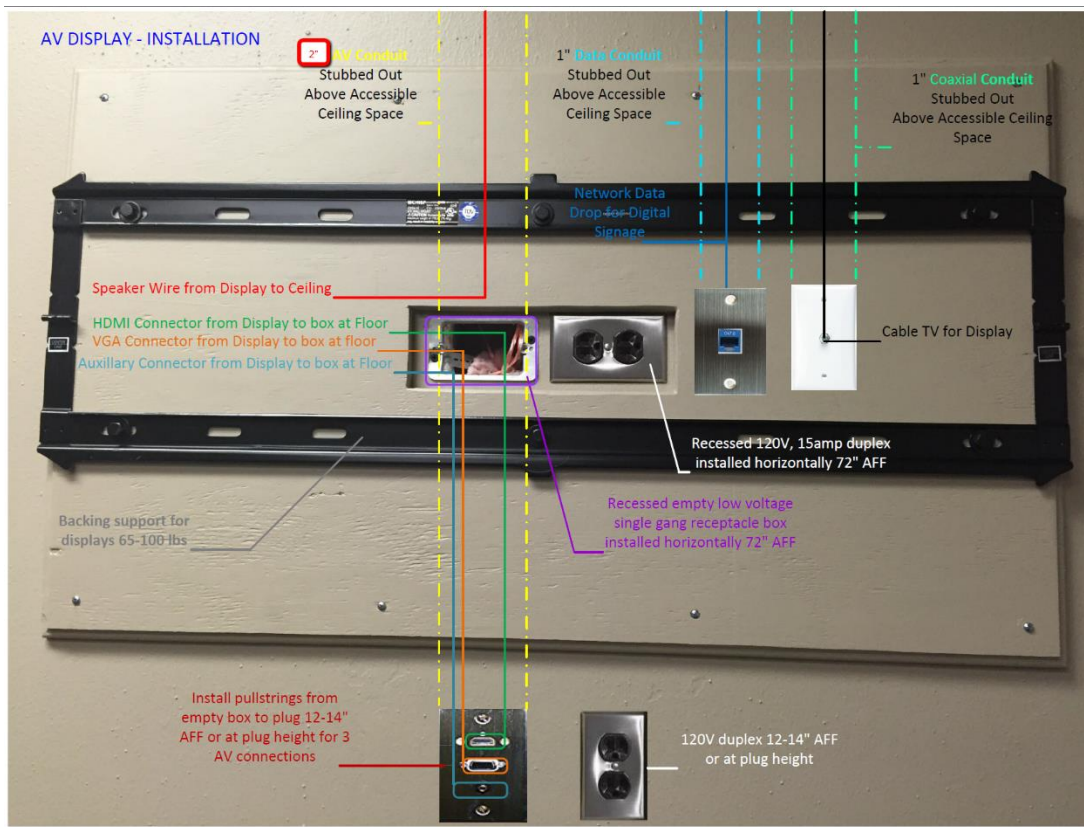
LCD/LED Displays and Projectors

Commercial LCD/LED/DLP Projection (XGA) HD capable Display with up to 1080P 1920 X1080 Resolution with at least 1 VGA and 2 HDMI inputs and Network capable interface and RS-232 control port. Standard Classrooms and Meeting Rooms: Projectors must have a minimum of 4,000 lumens.

- Large Venues and Meeting Rooms: Projects must have 6,000+ or higher lumens for depending on space requirements and distance.
- Lens should be included on all quotes spaces.

Preferred Manufacturers for Displays and Projectors

- *Samsung DME Series (Recommended)
- NEC
- Mitsubishi
- Panasonic
- Epson



Television displays that require being wall mounted will need to have 120V 20 amp receptacle installed horizontally 5.5" (66") to 6' (72") above finished floor else determined by the customer's needs. A backer board or re-enforced wall support for large displays is

required. Low voltage dry ring with pull strings from accessible ceiling space to TV location and at plug height for wall plate A/V inputs. See installation diagram below for more information.

Projector Lamps

For projector replacement lamps it is highly recommended to use Projector Lamp Source for discounted rates. For information regarding replacement lamps please contact:

Projector Lamp Source

Phone: 1-877-550-LAMP (5267)

Web: www.projectorlampsource.com

AV Wiring and Installation

- No loose wiring above dropped ceiling spaces.
- Minimum of 2 (2") conduits for new construction or renovated spaces are needed from equipment (AV) Rack housing space to equipment installed locations as indicated in construction drawings requirements or else determined by customer's needs.
- All cabling shall be installed within conduits. A/V integrator shall provide drawings indicating all required raceways to electrical contractor for installation.
- Plenum rated wiring is required for all AV installations.
- Static IP reservations are required for Crestron and Extron Control Solutions and video h.323 classrooms, conference rooms, lecture halls and performance venues.
 - Control processor
 - Switcher (if available)
 - Control panel
 - Codec
- AV control panels require power over Ethernet with approximately 11watts of POE power (with a max draw of 15 watts).
 - Data Drops for panels should be stubbed above drop down ceiling coiled with at least 8-10' of slack of rg6 cable with rj45 connectors.
 - AV integrators will do wire pulls for termination to AV control panel locations.
- The number of data drops is determined by the requirements of the spaces.
- Information Technology will coordinate with vendor on AV network requirements prior to project installation.
- Reference *University of Central Oklahoma Core Infrastructure Standards*.

Security

Any Projection, LCD or high cost media equipment displayed in public area must have:

- Sonic Shock alarm
- Stop Tags
- Cable Kensington lock
- Any type of master key lock.
- Or be connected to a Crestron Fusion Room View Server.

Video Equipment

- Commercial grade Blu-ray DVD Players with full 1080P resolution. Internet Application based DVD players are based on customer's needs.
- Sony or Vaddio HD/SD PTZ cameras for video capture.
- Wolfvision or Elmo document cameras for standard classrooms, conference rooms and lecture halls.
- VHS tape media will not be supported in newly built or renovated venues.
- Digitizing services are available in the Technology Resource Center, ADM 101 or 974-5595.

Audio

Wireless microphone systems must have either:

1. Wide range UHF frequency selection or
2. Fixed UHF frequency with the appropriate frequency setting to avoid outside interference.

Preferred Brands

- Shure
 - UIXP UR4D for similar series systems for large venues and auditoriums
 - PG Series or similar for systems such as smaller conference/meetings rooms and classrooms.
 - Sennheiser
 - AKG
 - UHF-R Systems are required for large venue theater/performance spaces.
- Speakers must have a polypropylene cone with rubber surround or better. Paper and paper composite coned speakers will not be allowed.
 - Preferred brands
 - JBL
 - BIC
 - Atlas Sound
 - EV

- Acoustic panels – Consult UCO Architectural and Engineering Services for fire Rating colors and finishes.
- Audio Console: In an AV controlled environment, digital consoles are preferred.
- Intercom Systems: Clear Com devices for all communication spaces in green rooms and dressing rooms locations for theatrical venues.
- Theater/ Performance Venues:
 - The Contractor shall provide a minimum of 9 hours training on the sound systems. (Three hour periods).
 - The Owner and/or his designated representative shall be fully advised as to the function of all operating controls and in techniques necessary to ensure proper operation of the entire system.
 - Instructions shall be given, via actual demonstration before and during a major activities or event.

Control Systems

Audio visual control installation will be determined by the complexity of the audio visual requirements. The following table below is a guideline to determine whether to use an **Extron** or **Crestron** solution.

Once the design, intended use, and technology requirements have been determined for each individual space, UCO will inform the vendor(s) on which control system is desired for each room.

For cases in which Crestron control systems are necessary, detailed programming plans should be communicated to the Office of Information Technology before full implementation.

		# of Video Outputs									
		1	2	3	4	5	6	7	8	9	10
# of Video Inputs	1	N/A	Extron	Extron	Crestron	Crestron	Crestron	Crestron	Crestron	Crestron	Crestron
	2	Extron	Extron	Extron	Crestron	Crestron	Crestron	Crestron	Crestron	Crestron	Crestron
	3	Extron	Extron	Extron	Crestron	Crestron	Crestron	Crestron	Crestron	Crestron	Crestron
	4	Extron	Extron	Extron	Crestron	Crestron	Crestron	Crestron	Crestron	Crestron	Crestron
	5	Extron	Extron	Extron	Crestron	Crestron	Crestron	Crestron	Crestron	Crestron	Crestron
	6	Extron	Extron	Extron	Crestron	Crestron	Crestron	Crestron	Crestron	Crestron	Crestron
	7	Extron	Extron	Crestron	Crestron	Crestron	Crestron	Crestron	Crestron	Crestron	Crestron
	8	Extron	Extron	Crestron	Crestron	Crestron	Crestron	Crestron	Crestron	Crestron	Crestron
	9	Extron	Extron	Crestron	Crestron	Crestron	Crestron	Crestron	Crestron	Crestron	Crestron
	10	Crestron	Crestron	Crestron	Crestron	Crestron	Crestron	Crestron	Crestron	Crestron	Crestron

Systems should report the following into Crestron Room View Server.

(Crestron Fusion Room View Server already in place)

- 1.) System Power*
- 2.) Display Power*
- 3.) Display Usage
- 4.) AV Help Desk
- 5.) Video previews for each source in the room.
- 6.) Incorporate UCO Graphic Design Touch Panel Standards

*Provide Feedback and Control.

UCO Blue

#003366

UCO Bronze

#FFCC00



For Crestron control rooms, it is required for vendor to use a Certified Crestron programmer in the local area.

Vendors shall provide control code, CAD drawings, schematics, and equipment manuals and other project documentation to the University of Central Oklahoma upon successful project completion and sign off or after the project has been awarded by purchasing.

Control System design should be based on function or activity in an event space as opposed to raw input/output control.

Crestron/Extron programming must be in a questions based template:

What would you like to do today? Based on the answer a preset of sources and destinations are programmed to meet the needs of the client using the control panels. Simplicity is the key to launching a new /updated AV space.

A/V Network Requirements for integrated spaces

Power over Ethernet wired connections are required for Crestron and Extron Control Solutions. UCO Information Technology will work with vendor on AV network requirements prior to project installation.

- Static IP reservations are required for Crestron and Extron Control Solutions and video h.323 classrooms, conference rooms, lecture halls and performance venues.
 - Control processor
 - Switcher (if available)
 - Control panel
 - Codec

- AV control panels require power over Ethernet with approximately 11watts of POE power (with a max draw of 15 watts).
 - Data Drops for panels should be stubbed above drop down ceiling coiled with at least 8-10' of slack of cat6 cable with rj45 connectors.
 - AV integrators will do wire pulls for termination to AV control panel locations.
- The number of data drops is determined by the requirements of the spaces.
- Information Technology will coordinate with vendor on AV network requirements prior to project installation.

A/V Furniture

To be determined by client and room specifications. Furniture will need to match Architectural and Engineering Services design and furniture finishes and recommendations. AV integrator must provide cut out templates for integrated AV into furniture spaces such as conference table cubby's and cable raceways etc.

Interactive Video Conferencing

The University of Central Oklahoma is a Cisco video conferencing campus. All codecs and HD cameras should be manufactured by Cisco.

- h.323 & h.264 communications.
- All video conferencing units must be registered with the gatekeeper.
- Cisco Service Maintenance Contract is required to be active and renewed yearly.
- Onenet Support desk 225-9421
- Static IP addresses are required
- HD Cameras 1080P Eagle Eye or approve equal.

Theater/ Performing Arts Venues & Control Room Requirements

- **Intercom:**
 - In Wall Clear Com integrated system for voice communication into all production spaces such as green rooms, dressing rooms, control room, storage and rehearsal spaces or otherwise indicated by the customer.
 - Independent volume control for back stage feeds.
- **HD PTZ Cameras:**
 - Cameras for video and audio capture of stage/performing area.
 - Cameras for audience video and audio capture.
 - Live Audio Video Feed from Control Room perspective
- **Press Box audio:**
 - Audio outputs near stage location for media hook ups
 - Quantities and exact location TBD by space design.

- **Displays:**
 - Backstage Audio Video Displays with alternate wall plate source inputs.
- **Speakers:**
 - Full range, two-way system
 - 2. 8" woofer and 1" swivel tweeter
 - 100 watts program power handling
 - 70/100-volt transformer
 - Locations and Quantities per Drawings
 - Integrated subwoofers are required. UCO IT will work with customer and architect on exact locations and quantities to maintain room design aesthetics.
 - Frequency Response (-3 dB) : 37 Hz – 150 Hz¹
 - Frequency Range (-10 dB) : 32 Hz – 180 Hz¹
 - Power Rating: 1800 W
 - LF Transducer : DVX3159A 380 mm (15 in)
 - Low Pass Frequency: Adjustable: 80 Hz, 100 Hz, 120 Hz,
 - 150 Hz
 - Maximum SPL: 134 dB peak²
 - Acceptable: JBL, Electro-Voice, D&B Audio or Approved Equal.
- **AV Control Room Spaces:**
 - Room size: 12'x20'
 - Work surfaces: 42" depth x 18 linear feet to accommodate lighting and audio consoles.
 - Operating stations for 3 people.
 - Black brushed aluminum Middle Atlantic AV rack or approved equal with secured front and rear doors and adequate cooling fans to keep AV equipment temperature between 65-72 degrees.
 - No Special HVAC system is required.
 - The Size and quantities to be determined by project requirements.
 - Minimum of 18" of accessible space around 3 sides.
 - 4, (2") Conduit runs from control room to floor stage location for AV wire pulls and source inputs.
- **Audio Amplifier:**
 - 250 W per channel for 4 Ω or 70/100V
 - Bridged mono out for 540 W into 8 Ω
 - Selectable 50 Hz or 300 Hz high-pass filters
 - Thermal protection, peak limiting, turn-on delay
 - Three-stage front - to- rear fans
 - Crown, Electro-Voice, QSC Or Approved Equal

- **Lighting:**

- The lighting control console shall have a minimum of 24 channels.
- A MODE switch selects the operation. Split crossfade control enables full manual fade between each scene and programmable.
- Master fader, blackout function, house master and control of moving light fixtures.
- The console shall have a nonvolatile memory to retain scenes and chases when powered off.
- Moving fixtures with up to 10 parameters per fixture.
- 120VAC, 20 Watts, 50/60Hz.
- Acceptable: Elation, Lightronics, ETC or Approved Equal
- Lighting for video
- Lighting for theatrical performances and recitals
- DMX control

Digital Signage

The University of Central Oklahoma has acquired Four Winds Interactive (FWI) as the official Digital Signage Standard across campus.

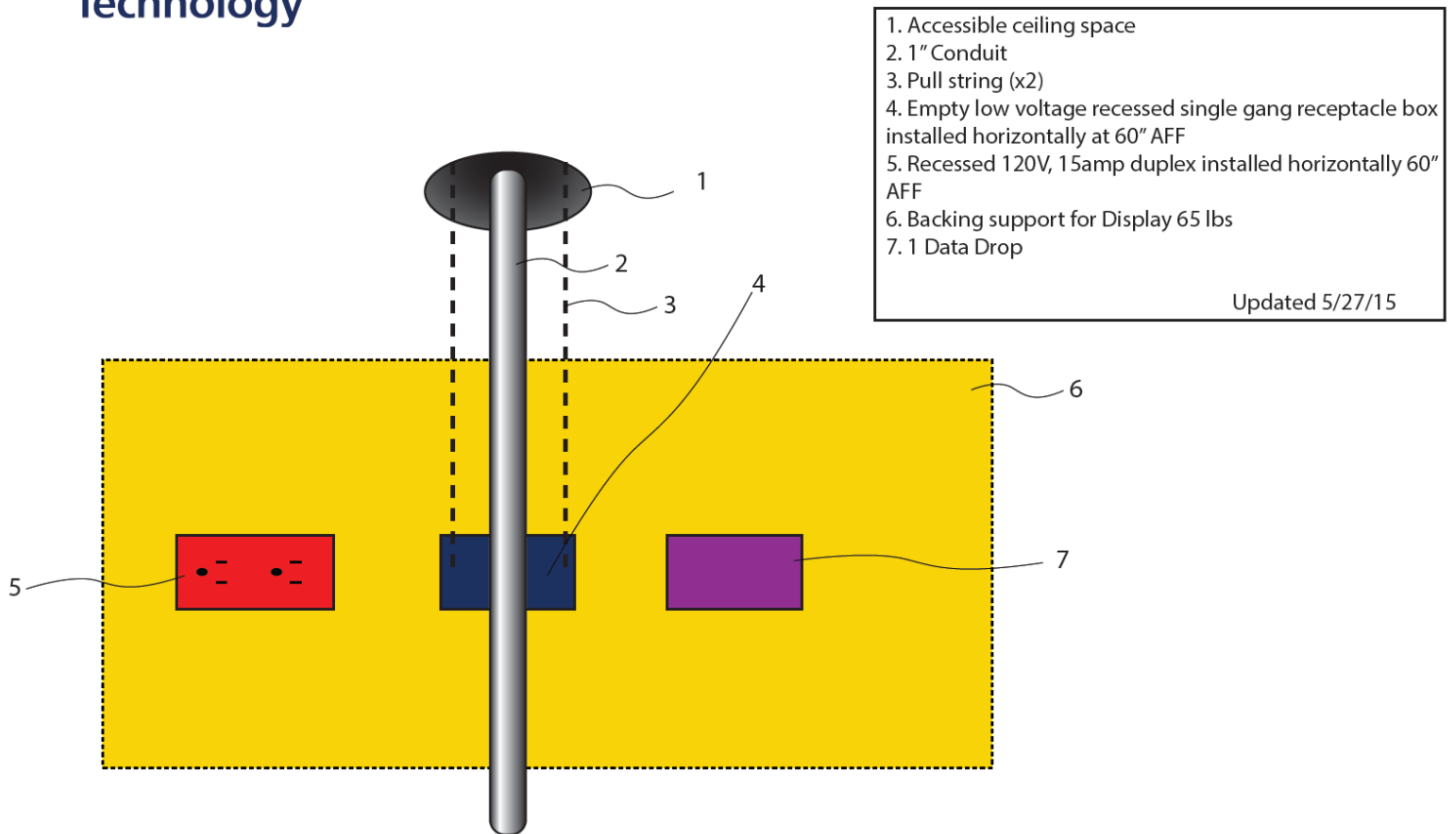
Colleges/Departments interested in adopting digital signage should:

- Submit a service desk ticket to support@uco.edu regarding digital signage needs in your area.
- College/Department is responsible for funding for the project as well as managing the content.
- A content Manager (uploader) will need to be assigned.

The official standard content player is a Dell Micro small form factor *Optiplex* with at least 4GB Memory and 500GB hard drive and HDMI video output card with a Dell Optiplex Micro VESA Mount manufacture part # aC6YXJ, dell part # 492-BBMM. A commercial Sharp display with 1920 X 1080 resolutions with 5:000:1 contrast ratio and built in speakers and RS232 control or approved equal.



UCO Digital Signage Display Installation



Classroom Recordings, Live and On Demand Streaming

The University of Central Oklahoma has acquired Kaltura as official streaming solution on campus. If a department is interested in implementing this into an area of capture, please contact the service desk at support@uco.edu 974-2255 the Technology Resource Center 974-5595 or fill out our online form to request a channel.

Web Conferencing Services

The University of Central Oklahoma has acquired [Adobe Connect](#) as the web conferencing solution on campus.

If a department is interested in captioning services, please contact the services desk at support@uco.edu 974-2255 or Technology Resource Center 974-5595 for all non- online courses.

Media Captioning Services

Cielo 24 as the official captioning solution at UCO. The cielo24 platform creates high quality, searchable data from unstructured media data including: indexes, transcripts, captions and media intelligence.

If a department is interested in this service please contact the service desk at support@uco.edu 974-2255 the Technology Resource Center 974-5595.

For Captioning requests for media used in an online course, please contact the Center of elearning and Connected environments at 974-2420.

Teleconferencing Services

UCO has acquired Cisco Conference now for Teleconferencing services for University conference bridging.

To request a conference bridge number for your next meeting involving more than 3 attendees in a call, please contact the service desk at support@uco.edu 974-2255 or the Technology Resource Center 974-5595.

Warranty and Training on AV equipment installed at UCO

Multimedia technology installed at the university must have a minimum of 3 year warranty protection period.

A service level agreement with the vendor and UCO is required on high cost conference rooms, classrooms and auditoriums with a local support response time by end of business day following first contact.

Formal training and documentation by the vendor shall be provided to UCO before project sign off along with support contact information in case of technology Malfunctions.

For all A/V project Installations, the selected vendor will:

- Provide UCO with the full scope of work on the Project.
- Provide Cad Drawing Schematic.
- Provide exact network locations for network drops.
- Provide exact locations on electrical outlets to best fit the installation.
- Provide effective and clean cable management.
- Not have loose cables above drop ceiling.
 - All wiring will need to be in conduit. Conduit to be provided by UCO.
- Work with UCO closely on Network Requirements.
- Work with UCO closely on Crestron/Extron Programming needs for installation.
- Provide proper communication to Project Coordinator and provide all project updates as needed.
- Work with UCO to configure equipment to work with UCO existing wireless. Should alternative solution be needed? Vendor will install wireless routers or access points according to UCO specifications and approval.
- Utilize plenum rated cabling for installation.
- Not run AV cable over other electrical sources.
- Provide all tools required to complete the project.
 - UCO will not provide ladders, zip ties, screw drivers, other tools, etc.
- Dispose of all the trash that accumulates during the installation.
 - Vacuum and dust off any ceiling tile debris in the room.
- Finish the project on time as proposed in the Scope of Work and provide closing documentation such as manuals, programming code, drawings, etc.
- Test all programming and functionality of the room prior to project sign off.
- Label all wiring for each independent source.
- Provide formal training and documentation on effective use of the installation.
 - Provide clear and understandable documentation.

- Assign installation technicians to the jobsite that are knowledgeable and professional that will communicate effectively with the customer.
- Install proper surge protectors that are needed based on the amps that the equipment is sending out for proper power management settings.
 - User power conditioner at all possible.
 - No daisy chain surge protectors
 - No extension cords used in ceiling
- The Vendor is responsible for transporting technology equipment to the worksite.
 - No Drop shipments will be accepted unless agreed otherwise by UCO.
- Use digital wiring for all multimedia equipment.
 - No RG6 cabling (only if identified by the customer)
 - No RCA Composite Wiring (only if identified by customer)
 - No analog wiring (only if identified by the customer)
- All classrooms and event spaces will meet minimum state and federal ADA specifications/requirements.