

ILLINOIS TECH

AUDIO-VISUAL STANDARDS

As approved by the Illinois Tech Audio-Visual Planning and Operations Committee
June 6, 2024

Illinois Tech Classroom Types and Brief Descriptions

Standard Classrooms – Room capacity 10 to 60 students

- Includes a fixed presenter desk or podium, professional grade AV control system providing a “**user-friendly**” centralized means of selecting and controlling audio and graphics from a desired input, to one, or in some cases, multiple display devices.
- Graphics output can be presented using either, a ceiling-mounted projector and screen with electric controls, or a wall mounted flat panel display monitor. Screen and monitor sizes will be dependent on room layout.
- A minimum of 12 linear feet of uninterrupted whiteboard space on the front wall, even with screens lowered
- Audio output from selected source will be provided through ceiling mounted speakers, whenever possible. Volume adjustments for all sources will be available through the central AV control interface.
- All rooms will provide the following AV input sources:
 - Crestron Air Media
 - Digital (HDMI) connections to a presenter laptop or tablet
 - Document Camera
 - Desktop Computer
- Presenter speech reinforcement (microphones, or similar) can be added if necessary.
- These rooms are not intended to provide any Hybrid or lecture capture.

Hybrid Classrooms – Room capacity 10 to 60 students

- Offers the same AV functionality as the **Standard Classroom**, but also provides presenters with the means of Synchronously teaching online as well as live in a classroom.
- Provides a microphone array for audio pickup and PTZ camera for in room viewing. Presenter speech reinforcement (wireless microphones, or similar) can be added if necessary. Both devices are made accessible via USB connectivity to build in desktop PC or User owned laptop for videotelephony software. Microsoft Teams or zoom for live-streaming the class, allows active synchronous participation by remote students.
 - **Standard** – Includes all the equipment and functionality above built into the room on a permanent basis.
 - **Cart Based** – Includes all the equipment and functionality above minus a control system but built onto a moveable cart. This design is intended for rooms that will not remain classrooms on a permanent basis.
- The synchronous content is delivered by the instructor’s choice of platform and streamed from either classroom PC or the instructor’s PC/Mac. The instructor is responsible for controlling what the synchronous students can view.

Hybrid Lecture Capture Classrooms – Room capacity 10 to 60 students

- Offers expanded AV functionality of a Hybrid Classroom with the addition of a second camera (PTZ or Fixed) and in-room recording device.
- Illinois Tech defines hybrid Lecture Capture as a simultaneous blend of in-person, synchronous on-line and asynchronous recording for later review.
- The recording can be used for review by in-class students or on-line students when required.

Hybrid Auditorium – Room capacity > 60 with tiered row seating

- Includes all functionality of the hybrid Lecture Capture classroom but, always contain two PTZ cameras that can be instructor controlled or remotely controlled by a production assistant when required.
- Room size may require multiple output devices, each with independent selectable inputs.

- The output devices can either be projectors and screens or multiple monitors, which could be combined into a “video wall”. Room usage will determine which method is appropriate.
- Lighting
 - Lights directly over the presenter and front wall need to be controllable from the presenter desk/podium. Ideally, lighting controls would be a function of the AV control program.

Collaborative Classroom

- In a **Collaborative Classroom** groups and individuals are able to share (and potentially record) displays with each other. The inputs to these displays may vary greatly due to students and faculty members bringing their own devices.
- Includes a fixed presenter desk, podium or AV cabinet, professional grade AV control system providing “**user-friendly**” centralized means of selecting and controlling audio and graphics from desired input, to multiple display devices.
- Graphics output can be presented using either, a ceiling-mounted projector and screen with electric controls, or a wall mounted flat panel display monitor. Screen and monitor sizes will be dependent on room layout.
- A minimum of 12 linear feet of uninterrupted whiteboard space on the front wall, even with screens lowered
- Audio output from selected source will be provided through ceiling mounted speakers, whenever possible. Volume adjustments for all sources will be available through the central AV control interface.
- All rooms will provide the following AV input sources:
 - Digital (HDMI) connections to a presenter laptop or tablet
 - Document Camera
- Presenter speech reinforcement can be added if necessary.
- These rooms can also include lecture capture or hybrid technologies, however, the teaching format used in these rooms is generally not conducive to synchronous or asynchronous on-line learning.

Recording Studio

- Small recording space, where presenters record sessions to post online. Many universities use these kinds of sessions in a “flipped classroom” model, where students view lectures before regularly scheduled class sessions freeing up instructors to prioritize and utilize class seat time for engaging instructional activities like discussions, problem-solving, etc.
- Includes a fixed cabinet for AV equipment, professional grade AV control system providing “**user-friendly**” centralized means of selecting and controlling audio and graphics from desired input.
- All rooms will provide the following AV input sources:
 - Crestron Air Media
 - Digital (HDMI) connections to a presenter laptop or tablet
 - Optional Computer
 - Optional Document Camera
 - Camera(s) and audio equipment to record presenter

Multipurpose space

- Includes a fixed cabinet for AV equipment, professional grade AV control system providing “**user-friendly**” centralized means of selecting and controlling audio and graphics from desired input, to one, or in some cases, multiple display devices.
- Graphics output can be presented using either, a ceiling-mounted projector and screen with electric controls, or a wall mounted flat panel display monitor. Screen and monitor sizes will be dependent on room layout.
- Audio output from selected source will be provided through ceiling or wall mounted speakers, whenever possible. Volume adjustments for all sources will be available through the central AV control interface.

- AV system should facilitate a means of video conferencing, approved by Illinois Tech OTS.
- All rooms will provide the following AV input sources:
 - Crestron Air Media
 - Digital (HDMI) connections to a presenter laptop or tablet
 - Optional Computer

Conference Room

- Includes a fixed camera(s) and microphone, accessible to users via USB connectivity
- Include ceiling mounted projector and electrical screen or wall or cart mounted Display of suitable sizing.
- Include audio and graphics accessed by HDMI or USB-C via an automatic AV switcher installed under conference room table.
- Display device(s) are never to be connected to directly, but instead by cat6 through a transmitter/receiver pair to HDMI to the automatic video switcher.
- An optional built-in PC can be added, with wireless mouse and keyboard.

AV Component and Infrastructure Requirements

- Fixed Instructor Desk/Podium/AV Cabinet with separate built-in AV rack and locking door (**See Table 1. Current List of Approved Manufacturers**)
 - Power: Quad outlet on 20A dedicated circuit
 - Qty. 6 - Cat6 UTP cables to IDF for AV Controller, Touch Panel, Lecture Capture (recorder) Box, Dedicated Classroom PC, Building AV In, Room AV Out
 - 1-Speaker Wire (14 AWG), 1- Cat6 UTP Screen Control, 1- Cat6 Shielded to each display device or room camera
 - The AV rack portion of the desk/podium/cabinet shall have vented, lockable, and removable panel/door on the front (door) and rear (panel) of the rack. The lock shall be keyed to Illinois Tech's standard AV key.
 - AV cabinets to be coordinated with the Office of Technology Services.
 - Presenter cable management with power outlets shall be included on the desktop.
- Required Display Device Cabling
 - Ceiling Mounted Projector (**See Table 1. Current List of Approved Manufacturers**)
 - Wide screen (16 x 10) native resolution
 - Mounting hardware must follow Manufacturer's Standards
 - Power: Duplex outlet on 20A Dedicated Circuit
 - 1 Cat6 UTP Cable to IDF
 - 1 Cat6 Shielded cable back to desk/podium/cabinet
 - Projector must be RS232 or Ethernet controllable (carried over Cat6 AV cable)
 - Projection Screen (**See Table 1. Current List of Approved Manufacturers**)
 - 16 x 10 Aspect Ratio
 - Mounting hardware must follow Manufacturer's Standards
 - Electric Motor w/Low Voltage Control
 - 1 Cat6 UTP cable back to desk/podium/cabinet
 - Power: hardwired on 20A Dedicated Circuit
 - Flat Panel Monitor (**See Table 1. Current List of Approved Manufacturers**)
 - Mounting hardware must follow Manufacturer's Standards. (Wall mounting required whenever possible)
 - Screen size to be determined by classroom size and layout
 - Output shall be a minimum of 1080P HD
 - Power: Duplex outlet on 20A Dedicated Circuit
 - 1 Cat6 UTP Cable to IDF
 - 1 Cat6 Shielded cable back to desk/podium/cabinet

- Monitor must be RS232 or Ethernet controllable (carried over Cat6 AV cable)
- Room Camera (**See Table 1. Current List of Approved Manufacturers**)
 - Mounting hardware must follow Manufacturer’s Standards.
 - Power: Duplex outlet on 15A Circuit
 - 1 Cat6 UTP Cable to IDF
 - 1 Cat6 Shielded cable and one RG-6U coax back to desk/podium/cabinet
- Instructor’s Monitor (**See Table 1. Current List of Approved Manufacturers**)
 - Mounting hardware must follow Manufacturer’s Standards. Monitor must be installed on the instructor’s desk.

Table 1. Current List of Approved Manufacturers

Description	Manufacturer(s)/Models
Remote Support Software	Crestron/Fusion
Room Controllers	Crestron DMPS3-4K-350-C or suitable Crestron control Processor, with 7” touchscreen interface (TSW-770-B-S)
Wireless receiver	Crestron Air Media AM-3100 or AM-3200
Lecture Capture Hardware	Epiphan Pearl Mini ESP1440
Microphone Array	Nureva HDL310-W or B
Projectors	Epson PowerLite 2255U and Pro L1100U Laser
Projection Screens	DaLite
Flat Panel Monitors	Commercial grade display - LG, NEC, Samsung or Sharp
Desk mounted Confidence Monitors	Beetronics 7HD7M HD 7 inch monitor
PTZ Cameras	Sony SRG-X120 or PTZ Optics PT20X-SDI-WH-G2
Unmanaged Network Switch	Netgear GS108LP-100NAS eight ports with POE+
Fixed Cameras	PTZ Optics PT20X-ZCAM, Owl Pro
Document Cameras	Hovercam Ultra 8
Presenter Desk/Podium/Cabinet	Marshall
Amplifiers (if required)	Crown, Crestron QSC, JBL
Digital Sound Processors	Biamp Tesira line
Wireless Microphones (if required)	Shure SLXD-J52, ULX-D-G50 series
Speakers	Atlas
HDMI cable to user	Crestron 12ft HDMI
HDMI Transmitter (to display)	Crestron DM-TX-4KZ-302-C
HDMI over Cat transmitter/receiver	Crestron HD-TXC-101-C-E & HD-RXC-101-C-E
HDMI over USB Capture	Magewell MAG-32060 USB Capture HDMI Gen 2
SDI over USB Capture	Magewell MAG-32070 USB Capture SDI Gen 2
Audio Distribution Amp	Kramer VM-50AN
Video Distribution Amp	Marshall Electronics VDA-104-3GS 1x4 3G/HD/SD-SDI Reclocking DA
TV Cart (for 32” to 70” displays)	Startech STNDMTV70
UPS	APC BE850M2
USB Switcher	ATEN US3344I 4x4 USB switcher
Desktop PC	Dell Optiplex 7010 micro
Desktop monitor	Dell P2424HT 24” Touchscreen monitor
Unmanaged network switch	D-link DGS 1005P Switch 5 port
Power injector	Trendnet Gigabit POE+ (30W)
Auto Video switcher	Atlona AT-JUNO-451 4x1