

Learning Technology Design Standards for Syracuse University Registrar Classrooms

As learning and collaboration technologies evolve at an ever-increasing pace, it is important to have a flexible, cost-effective and robust framework for equipping classrooms that supports the Academic Strategic Plan and allows for future change and expansion. The systems implemented need to be consistent, reliable, secure, flexible, easy to use and easy to support. While each system varies in complexity — and the amount of technology installed corresponds to the classroom type, location and use — all fit a standard implementation model. To that end, the following outlines the major components and feature sets for systems implemented at Syracuse University.

Learning Technology Infrastructure and Connectivity

The supporting infrastructure is the backbone of the learning technology system. An end-to-end digital system utilizing Category 6a cable as the transport medium, which allows for easy installation and quick upgrades. It also has the ability to support higher resolution video as technology improves. The current standard calls for High-Bandwidth Digital Content Protection (HDCP) compliant systems with High-Definition Multimedia Interface (HDMI) input. The primary standard for connecting to the learning technology system is HDMI. This industry standard allows for audio and video to travel over a single cable. Consolidated hardware that includes switch, control processor and amplifier are preferred.

- HDCP compliant system for playing protected content.
- HDMI interface for easily connecting multiple device types.
- Appropriately sized matrix switcher that supports multiple transport types, resolution up to 4K and scaled output.
- Programmable control system with multiple control port options; customizable touch screen with standardized user interface or push-button control.

Teaching Station

The goal of the teaching station is to provide the instructor with an accessible, adjustable and easy to use platform to enhance lectures. The standard teaching station is height-adjustable and able to be repositioned in a well-defined area. User-accessible equipment is arranged on top of the station or under-mounted in appropriate locations.

- Height-adjustable table customized to match room design.
- Drawer for accessories.

Accessibility

The accessibility of learning technology systems is of utmost importance. Accessibility features are installed proactively and not as an afterthought.

- Assistive Listening System (ALS) – Radio frequency (RF) or infrared (IR) technology based on room requirements
- Communication Access Real-time Translation (CART) support in larger venues. A mobile CART monitor is available in all academic buildings

Display Devices

The number of display devices and sizing are based on the room layout and capacity. Larger venues typically have projection-based systems while smaller rooms utilize Liquid Crystal Display (LCD) monitors.

- Projectors – Laser-based, Digital Light Processing (DLP) projectors are preferred. Brightness is specified to accommodate room conditions and desired output.
- LCD Displays – 4K resolution displays with wide viewing angles

Audio and Video Capture

With the increased need for online content, lecture reinforcement and real-time, online learning, technology to support these activities is critical.

- Front and rear cameras – Point, tilt, zoom, high-definition cameras
- Wireless microphones – Wireless handheld and lavalier microphones
- Audio/Visual Bridge – Cameras are connected to local computer for use with web-based applications
- Audience microphone – Ceiling-mounted microphone for general room recording
- Confidence monitor – Monitor located opposite the teaching station to allow faculty to verify camera views or display lecture notes and other content

Audio Playback

The type of audio playback system is based on the room type and instruction need. All audio is also available on the Assistive Listening System.

- Public Announce System – Ceiling-distributed audio for content playback or voice amplification

- Program speakers – Teaching wall-mounted speakers for rooms that require stereo playback

User Devices

The number and type of user-accessible devices for displaying content are based on the room type and typical use.

- Local computer – Small form factor, Windows computer
- Wacom – Interactive pen-based display
- High-definition document camera
- Blu-ray player

Training

Provide training for students, faculty and staff on the use of learning technology installed in the classroom.

- Group and one-on-one training sessions.
- Online tutorials and documentation located on answers.syr.edu.

Security

The learning technology systems implemented today are computer-driven and network-connected. They need to be secured like any other computing device on campus. A standard set of protocols and procedures needs to be followed.

- Networked devices not requiring internet access are placed on a private network.
- Default usernames and passwords are changed or disabled.
- Systems use encryption where appropriate for the location and type of content.
- Firmware is updated and maintained on a regular basis.

Lifecycle

The typical lifecycle for the learning technology system is seven years. The lifecycle of individual components will be evaluated based on need, usage, maintenance costs and warranty. Individual components may be replaced at varying cycles according to this evaluation.

Management

The ease of management is critical when dealing with large numbers of learning technology systems. Remote monitoring and control of systems is important for a diverse and widely distributed classroom pool. It allows for scheduled shutdowns and checking on system health as well as providing operational statistics.

Submitting Comments and Questions

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