Smart Classroom Guide

Columbus State Community College

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April 28, 2014

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Sept. 8th, 2026

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Proposal for the Smart Classroom Guide for Columbus State

Executive Summary

The smart classroom at Columbus State Community College provides faculty and staff state of the art technologies to effectively instruct students. Not all staff, however, is proficient in operating the equipment in the classroom. This fact does not go unnoticed by the staff in the Academic Technology Services (ATS) department. To date, ATS has provided faculty and staff with the following training items.

- Smart Classroom training videos
- Smart Classroom quick start guides
- Document camera instructions
- Smart Classroom training seminars
- Hy-Flex Classroom training seminars
- The Classroom Helpline

These items have been sources of quick assistance for the users. Calls to the IT Support Center, however, have continued to rise regarding issues in the classroom. A detailed operations guide will provide faculty and staff an in-depth source for basic operations and troubleshooting techniques in the classroom.

While it is understandable that not all issues can be eliminated with a detailed guide, the mere existence of such a guide can be of assistance to faculty and staff. The Columbus State IT department has invested in a new knowledge base system to provide users access to various topics. A detailed smart classroom guide would be added to the knowledge base so that it would be accessible to the entire campus.

Introduction

Entering a smart classroom on the campus of Columbus State Community College (CSCC) may present some challenges for non-technical users. This guide serves as a tool for operating the equipment in the classroom.

Subject and Purpose

A "smart classroom" is defined as any room that contains a computer, a mounted data projector, laptop and network connections, and a wall panel in which to display each unit. Most classrooms have a document camera as well. This guide is a detailed instructional guide that users may refer to for troubleshooting and operating procedures. This guide will be added to the CSCC knowledge base in which faculty and staff could refer to for answers to equipment operations.

Scope

This instructional report will cover the following steps.

1. What to expect when entering/using a CSCC smart classroom.
2. Operating procedures for the various equipment.
3. Operating the mounted data projector in conjunction with the other equipment using the Extron control panel.
4. Connecting a personal laptop to the data projector.
5. Window +P keyboard shortcut for displaying images.
6. Troubleshooting the variety of issues with each piece of equipment.
7. Where to turn to for assistance, when needed.

This project is a source of information and troubleshooting for the user. The following sections will be comprised of a very detailed guide that will cover a majority of aspects and situations that may arise with the equipment in a smart classroom.

Research Methods

The research that was completed for this project includes operating manuals from each piece of equipment in the classroom. The CSCC ATS department has made informational videos on the operating procedures in a smart classroom. This report refers to these videos to add pertinent information. The staff of CSCC's ATS department has added information, relying on years of experience of maintaining and troubleshooting the audio/video equipment in the classrooms. Pictures and diagrams of the equipment are used as well to aid the user. With all the information collected and researched, this smart classroom guide is comprised of the most detailed instructions for smart classrooms at CSCC.

The Columbus State Community College Smart Classroom

Standard equipment in a smart classroom on the CSCC campus are: computer, data projector, document camera, an HDMI or USB-C laptop connection, and a touch panel used to select which source to display on the projector (Figure 1). The equipment is housed in the instructor's desk located at the front of the classroom. The computer monitor is mounted to an adjustable arm that can accommodate sitting or standing instruction. The computer's keyboard rests on an adjustable tray that also accommodates sitting or standing.

Figure 1 ***Smart Classroom instructor's desk***

Operating Procedures

Each piece of equipment in the CSCC smart classroom has specific operating instructions. This section will describe the procedures for operating the equipment.

The Smart Classroom Computer

The CSCC smart classroom contains a Dell OptiPlex 7040 or similar model computer (Figure 2). The initial step for a user entering the classroom is to power on the computer (if necessary) and log on to the computer. Logging on to the computer first will allow for seamless transitions when using the other equipment. The power button is located in the top right corner of the computer tower.

Figure 2 ***Smart classroom computer***

Once the computer is powered on and the user has logged on to the desktop, the user may power on the mounted data projector by using the Extron wall panel.

Document Camera

The document camera in the smart classroom is an Elmo TX-1 Interactive Document Camera (Figure 3). It functions like a webcam as it is a camera that may be used to display images through the data projector. *note: not all Smart Classrooms are equipped with a document camera.

Figure 3 ***Elmo TX-1 Document Camera (elmousa.com)***

The camera must be powered on to display images. The power button is located on the base of the camera on the left side (Figure 4).

Figure 4 ***Document camera power button and zoom controls location (elmousa.com)***

The camera is equipped with an optical zoom knob which can be adjusted to focus in closely on objects. The unit also has an automatic focus feature which will focus the image when zooming in or out of an image.

Extron MediaLink® Control Panel

The Extron control panel (Figure 6) is the control panel for controlling audio/video equipment displays in Columbus State Community College's smart classrooms.

Figure 6 ***Smart Classroom Extron Control Panel in the powered off state; PC is selected as the current display***

The panel works in conjunction with the **mounted data projector** (Figure 7) as it standardizes the controls for all technical equipment in the classroom allowing for easy switching of displays. The panel's illuminated button controls makes it convenient for the user to see what device is currently being displayed. Because the buttons illuminate, they are helpful for presenters in low-light environments (extron.com).

Figure 7 ***Epson Data Projector (epson.com)***

The Extron panel acts as an extended remote control for the data projector. It eliminates the need for standard projector remote controls and reduces the risks of remotes becoming lost or stolen. The control panel tells the projector when to switch between its various inputs when the user interacts with the panel. It also serves as the room's volume control with a control knob

used for adjusting the volume levels. Presenters with little or no training can walk into any smart classroom and operate the AV system.

Description of Parts

The standard smart classroom Extron control panel contains four sections of buttons and knobs: display power control, volume control, image controls, and display switching controls.

DISPLAY POWER CONTROLS. Located in the top left section of the Extron control panel, the display power controls are two buttons labeled “on” and “off” which are used to turn on and off the mounted data projector (Figure 8).

Figure 8 ***Display in the powered off state***

VOLUME CONTROL. Located below the display power controls, in the bottom left section of the Extron control panel, the volume control contains a knob and LED lights to indicate the current volume level (Figure 9).

Figure 9 ***Volume level in the moderate/low state***

DISPLAY SWITCHING CONTROLS. The right side of the Extron control panel contains the display switching control buttons. In a standard smart classroom, only three or four of the eight buttons will be labeled for use (Figure 11).

Figure 11 ***Display switches with PC selected as the current display***

The Extron control panel will be located on the instructor's desk in the smart classroom (Figure 12).

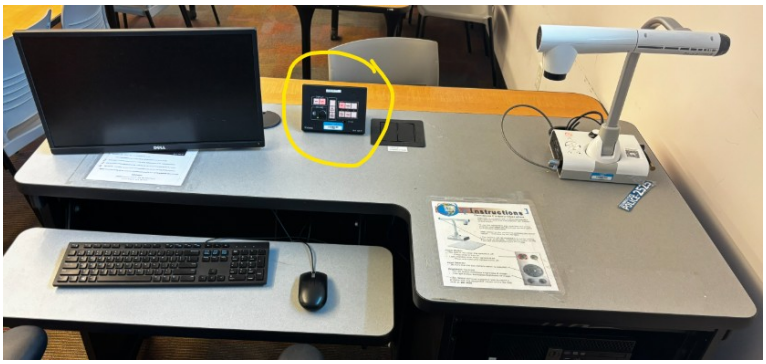

Figure 62 ***Standard Smart Classroom – Extron panel location***

In order to operate the data projector, the "On" button in the display power control must be depressed. This will power on the data projector. Once the data projector is on, the user may select any of the AV equipment on the instructor's desk to also power on. The display switching controls on the Extron panel will be used to display the appropriate device, for example, the document camera must be turned on and the "Doc Cam" button must be selected to display the image on the screen. There are several items to select from: PC, Laptop (users must provide their own device), and Doc Cam. Each device must be powered on and the appropriate button on the Extron panel must be selected.

There are four speakers located in the ceiling. The volume is controlled with the volume control knob on the Extron panel. The LCD lights display the current level of volume. The user may also wish to mute the display by selecting the "AV Mute" button. This will turn off the display for the class without powering off the projector. The "AV Mute" button will flash while the display is muted. When the user is finished with the equipment, the "Off" button will power off the data projector (cscc.edu).

The Extron control panel allows even the most novice of technical users to operate efficiently and effectively in a smart classroom at Columbus State Community College. The panel's buttons and knobs are clearly labeled. The illuminated buttons allows users to properly function the controls in the darkest of settings. Switching between displays is a seamless transition with the push of a button. Additional operating instructions are conveniently located on the instructor's desk.

Laptop Connections

The CSCC smart classroom contains connections for users to connect a laptop to the mounted data projector. The instructor's desk has a compartment on the desktop that houses HDMI or USB-C cables. The proper cable must be connected to the laptop in order to display it through the data projector.

Laptops must have a HDMI or a USB-C connector on the laptop to display the laptop image. If a user's laptop has an older VGA connector, the user must supply his/her own VGA adaptor to utilize the laptop function in the classroom.

CSCC does not supply adaptors for the classrooms.

Windows +P Keyboard Shortcut

The Windows +P keyboard shortcut is the primary tool for switching displays in a classroom. It is also a key troubleshooting tool when diagnosing display issues. The intended readers for the Windows +P shortcut method will be beginner users of technical/computer equipment. The keystroke shortcut that I will define is designed to solve a variety of display issues in a smart classroom. Many non-technical users are unaware of the "Windows" button on the keyboard. This definition will introduce the "Windows" button and its primary function when paired with the "P" button on the keyboard.

The "Windows" button (Figure 13) on the keyboard in combination with the "P" button, commonly known as "Windows +P" is used to switch display modes between the computer monitor and the mounted data projector on the ceiling. The primary function allows a user to view the desktop of the computer on the computer monitor only, on the data projector only, on both the computer monitor and data projector, or allows a user to utilize the data projector as a second monitor, allowing a user, for example, to have a PowerPoint presentation open on the data projector and the user's notes open on the computer monitor in Extended Desktop mode.

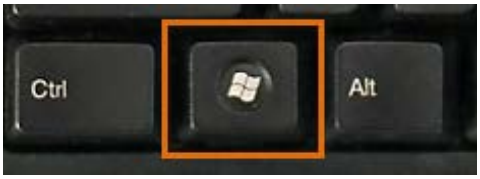

Figure 13 ***The "Windows" button***

To properly use the Windows +P shortcut keystroke, the user must press and hold down the “Windows” button. While holding down the “Windows” button, the user must then press the “P” key. This will bring up a menu (Figure 14) that will allow the user to select the desired display function. To operate the menu the user may use either the mouse to select the function or the arrow keys on the keyboard. **Note:** if using the arrow keys, when the desired display function is highlighted, the user must then press the “Enter” key to finalize the selection.

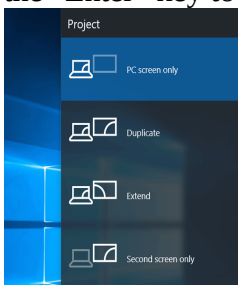

Figure 14 ***Selection Menu with Computer only Option displayed***

The Windows +P shortcut keystroke brings up a menu for the user to select a desired display function. The function that is currently selected will be highlighted by a light blue background. As the user cycles through display functions, either with the mouse or the arrow keys, the desired display function will become highlighted. There are four components to the menu, Computer only, Duplicate, Extend, and Projector only.

1. **PC Screen only:** when selected this function will only display the PC image on the local computer monitor, even when the data projector is powered on.

2. **Duplicate:** when selected this function will display the PC image on BOTH the local computer monitor AND the date projector (when powered on).

3. **Extend:** when selected this function will allow the user to have two different windows open at the same time. For example, a Microsoft Word document may be displayed on the data projector for the class to view while the instructor’s Blackboard page may be displayed on the local computer monitor.

4. **Projector only:** when selected this function will display the PC image on the data projector and will blank the screen of the local computer monitor. If the data projector is off, the display will not be visible.

The Windows +P shortcut keystroke can be used for many display issues in the classroom. By default, the display is set to “Duplicate,” which brings the display up on both the local computer monitor and the data projector.

Troubleshooting

CSCC smart classrooms are used by several people daily. Some settings might change regularly. This section contains a list of common issues that have quick and easy solutions.

1. The PC won't display on the projector, but displays on the PC monitor. Ensure that the "On" power button is selected on the Extron touch panel AND that the "PC" button is selected. If it still does not show, use the Windows +P keyboard shortcut to select "Duplicate" from the selection menu. "Duplicate" is also the default setting. Logging out of Windows and logging back in should restore this setting.

2. There is no sound coming from the speakers. Check the volume knob on the Extron touch panel and ensure that it is turned up. Check the volume icon on the computer desktop (bottom right, next to the date and time) and ensure that it is not muted or turned down (Figure 15). Also be aware of volume levels on playback software, such as YouTube, embedded videos, and playback software (Windows Media Player, Quicktime, or VLC Media Player)

Figure 15 Computer volume icon

3. The projector is only showing half of the display (Figure 17). Switch displays from PC to laptop and back to PC on the Extron wall panel. This issue occurs if the projector is turned on before the PC.

Figure 17 Projector displaying half image

5. The PC displays on the projector display, but not the PC monitor. Make sure the computer monitor is turned on. If the issue persists, use the Windows +P keyboard shortcut and select "Duplicate" from the selection menu.

6. Cannot logon to the computer. Make sure the "Caps Lock" key is off. Ensure that you are entering the correct username and password. Your password needs to be changed every 90 days, and will expire if it is not changed. This will prevent you from logging in. If you still cannot login, contact the IT Support Center (614-287-5050) and they can create a temporary login that you can use.

7. The display selection menu does not appear when the Windows +P keyboard shortcut is used. This is caused when the graphics card on the computer is not configured to allow the Windows +P function. Should this issue occur, please contact ATS Classroom HELP LINE (614-287-HELP) and inform the technician of the issue. A technician will be dispatched to the classroom to correct the display issue.

8. The projector is OFF but there is not an image on the computer monitor. Ensure that the computer and monitor are turned on. The display function may be set to "Projector only." Turn on the data projector, select "PC" on the Extron wall panel, if the computer image is displayed then utilize the Windows +P keystroke to select the "Computer only" or "Duplicate" display function.

9. The projector is ON but the image displayed is a blue screen when "PC" is selected on the Extron touch panel. Ensure that the computer is turned on. The display function may be set to "Computer only" or "Extend." Ensure that the computer is turned on. To correct the issue, the Windows +P keyboard shortcut may be used to select the "Duplicate" display function.

Classroom Support

Issues may arise from time to time in a CSCC smart classroom. There are several methods to obtain support from the CSCC IT department.

Urgent Support

For immediate assistance with issues in the classroom, contact the **Classroom Support Hotline: 287-HELP (4357).** If the issue cannot be resolve over the phone, a technician will be dispatched to the room. Be sure to supply the phone representative the building and room number and your name so that a support ticket can be created.

Non-Urgent Support

For issues in the classroom that do not require immediate assistance, contact the IT Support Center via phone at **287-5050** or via e-mail at **helpdesk@cscc.edu.** Be sure to supply the building, the room number, and your name so that a support ticket can be created.

Conclusion

The smart classroom at CSCC provides faculty and staff state of the art equipment the efficiently and effectively teach in the classroom. This guide will allow even the most non-technical users to operate the equipment in the smart classroom.

As the technology changes in the coming years, this guide will be updated to recognize the changes. It is this author's hope that this guide will be the source of troubleshooting and operations for the Columbus State Community College Smart Classroom.