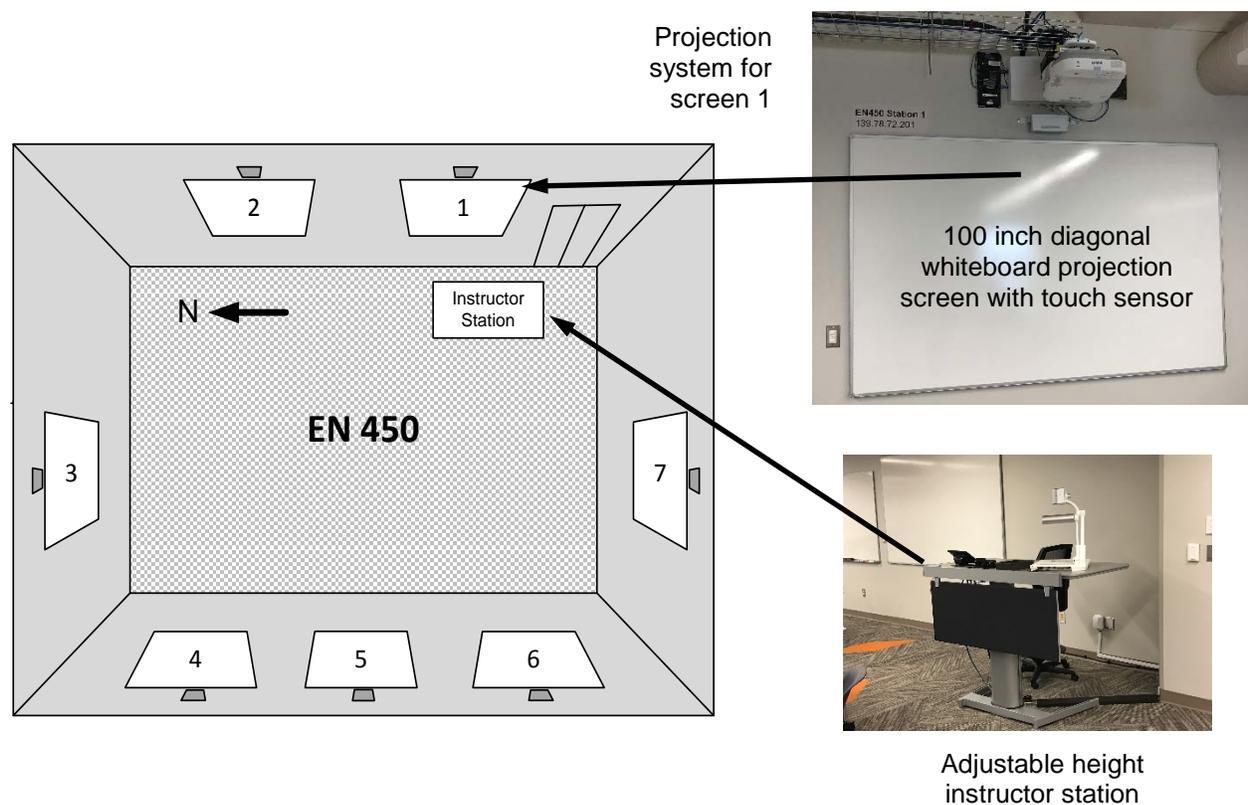


EN 450 Classroom Overview

Version 1.00

All of the furnishings and technology installed in this general university classroom were provided by chemical engineering donors and alumni. The intent was to provide a state-of-the-art active learning environment with unlimited interactivity and the ability to record and easily distribute videos of class lectures and worked example problems.

There are seven projection systems distributed around the room as shown below. The touch control panel located on the instructor station is used to determine what is displayed on each of the seven projection screens and what is captured (optional, not required) on two digital video recorders (DVRs). The audio system includes a portable lapel microphone and eight ceiling-mounted speakers that can be separated into two zones.



The seven projection systems have two-way connectivity. In addition to showing what is displayed on the instructor's wifi-enabled tablet or laptop computer, the system also allows the instructor to operate his or her device from the touch-enabled projection screen. This also means that annotations made on the projection screen in class will be simultaneously added to the document being displayed on the instructor's tablet or laptop. This capability is available to everyone in the room (maximum of 64 users connected to a single projection system at one time). The instructor determines who displays on a screen when multiple users (e.g., students) are connected. Two-way connectivity is supported for Windows 7/8/10, Mac OS X 10.9/10.10, Android 4 and above, iOS7 and above, and Chromebook. Smartphones and iPads can also be used but are limited to projection-only (control of the smartphone or iPad from the projection screens in the room is not possible).

The net result is the ability to extend high impact, one-to-one type interactions to large group settings through large image, editable workspaces that can be easily viewed-shared-modified-analyzed-debated in class. The expectation is a more in-depth learning experience by taking classroom Q&A to a new level. In a similar manner, the ability to easily capture (by AV recording) qualitative reasoning for assumptions and other problem-solving practices should accelerate development of analytical reasoning skills and free-up class time for additional content or other purposes.

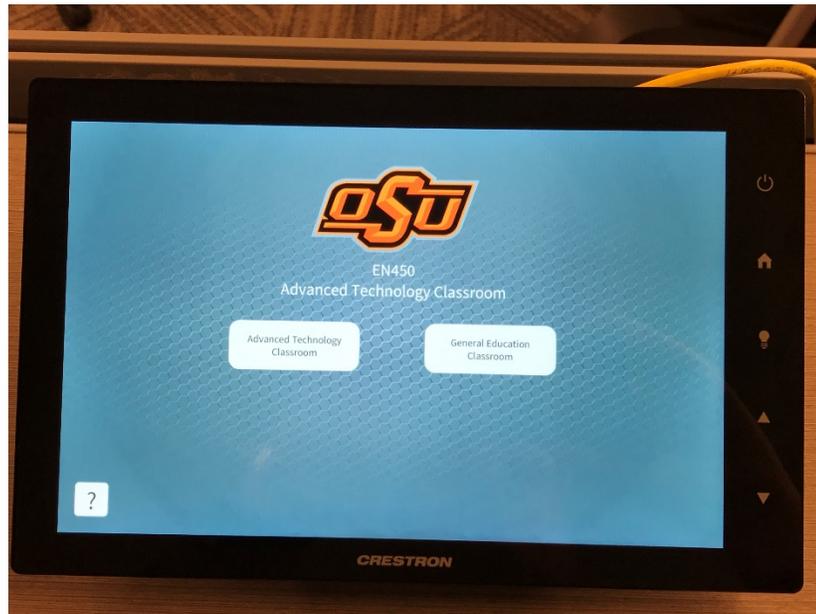
The room can be used as a next-generation “computer classroom” when everyone brings a laptop or tablet computer to class. All CEAT students are now required to have a personal laptop.

The room is equipped with easily reconfigurable tables (42) and chairs (84). Instructors and students are free to arrange seating in the manner best suited to each course. Use of all seven projection screens ensures visual access to instructional content regardless of where students sit in the room or how the tables are arranged. Several possible seating arrangements are shown below.



The touch control panel located at the instructor station allows the instructor to choose a projection system configuration that best suits the class for that day.

Top level display on the touch control panel located at the instructor station. This is the starting point at the beginning of class each day.



The “General Education Classroom” option provides a setup similar to what is currently available in most OSU general university classrooms. This option effectively defines the east wall to be the “front of the classroom” and limits projection to screens 1 and 2 (on the east wall). The other five projection systems cannot be used when the “General Education Classroom” is selected. Unlike general university classrooms, there is no desktop computer installed in the EN 450 instructor station. However, there are two laptop computers configured in the manner of the general university classrooms that are available exclusively for use by EN 450 instructors. Instructors can check out a laptop from CEAT IT in EN 323 (located one floor directly below EN 450) and access their files from a flash drive or from their personal account (H: drive) on the OSU network.

The “Advanced Technology Classroom” option provides a broad range of configuration options that maximizes the active learning intent for the classroom. It is straightforward to select options on the touch control panel to create an enhanced “General University Classroom” configuration with access to all seven projection systems.

In all configurations, content can be presented using a document camera, a laptop with a VGA or HDMI connection, or computers/tablets/laptops/iPads/smartphones with wifi capability. In the “Advanced Technology Classroom” mode, the instructor selects from one of four preset configurations: Single Source, Two Source, Three Source or Group Mode. The Three Source configuration provides the greatest flexibility as the instructor can use up to three inputs and easily display content from any of the three on any or all of the seven projection screens (example: Source A = document camera, Source B = instructor’s laptop, Source C = iPad).

The Group Mode configuration option is designed for in-class activities where individual or groups of students connect to the projection system and share their work with everyone in the class.

The greatest value is obtained when the instructor connects his or her computer(s) to the projection system through the OSU wifi network. A laptop connected using a VGA or HDMI cable has one-way (display-only) capability and cannot be controlled from a projection screen. A laptop connected using a VGA or HDMI cable has the same functionality as a document camera. Hardwired connection of a single computer¹ is supported for legacy purposes only. Use of wifi-enabled computers and tablets is strongly encouraged.

Short videos demonstrating how to use the system are available on the school website (che.okstate.edu).

This document and the videos remain a work in progress. Please direct questions or suggestions for improvement to either:

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¹ The receptacle on the instructor station is equipped with both a VGA and HDMI female connector. However, only one of the two connectors may be used at any time. Connecting two computers (one via VGA and the other through HDMI) at the same time will disrupt operation of the classroom projection system.