

NVCC Digital Classroom Standard

Northern Virginia Community College (NOVA) has renewed its commitment to educational excellence by publishing the following classroom standard. Beginning in 2013 all new educational spaces and all renovated spaces will adhere to the digital classroom standard. The digital classroom standard was created to insure a standard user experience across all campuses while providing systems which are cost effective, reliable and provide faculty and students with the latest in classroom presentation capabilities. This standard was created in collaboration between campus audio visual support, campus information technology support, and the college office of Campus IT Client Services. Since all classroom spaces are refreshed every 5 years, all classroom spaces will be converted to digital signal processing by 2018. This standard will be reviewed every two years to keep pace with changing technologies. This digital standard was recently reviewed for deployment in Fiscal Year 2016, and the standard changes are included below.

Display: All digital display systems shall be capable of displaying WXGA quality resolution. WXGA is high definition resolution and exceeds the quality of 720p high definition video. WXGA resolution is commonly understood as 1280 x 800 pixel count. The display resolution in classrooms will be set at 16:10 aspect ratio. For classroom designs every consideration must be given to sight lines, room size, and any special space characteristics to insure students and faculty have comfortable viewing. For spaces with less than 25 seats, a commercial grade flat panel display is suitable assuming the display size matches the room size. For spaces seating more than 25 students the Epson PowerLite 1975W projector is the preferred display device. This Epson projector is capable of WXGA display resolution and has color brightness output of 5,000 lumens. For spaces requiring a short throw projector the Epson PowerLite 585 is the preferred display device. This projector is capable of WXGA resolution and has color brightness output of 3,300 lumens. For spaces seating more than 45 students or spaces with special characteristics impacting sight lines, flat panel displays to reinforce video presentation from the projector. For non-tiered classrooms seating 80 or more student video reinforcement is highly recommended. For spaces where projector mounting distances or other space characteristics lie outside the Epson 1975W specifications, the Epson Pro G 6050 projector is the standard substitute. The array of lenses available for the Pro G 6050 offers the flexibility to meet these requirements. This projector is capable of WXGA resolution and color brightness output of 5,500 lumens. During classroom refresh, every effort will be made to replace any existing 4:3 aspect ratio display screens with 16:10 ratio display screens. When ambient or natural light makes strains image viewing in classrooms, using a high contract screen material is recommended.

Input: Every space will have at minimum four standard inputs. These inputs include podium installed network computer, document camera, podium laptop digital input, and podium laptop analog input. The podium installed computer will be connected to the AV switching system by digital signal. These digital signal outputs include DVI, display port, or HDMI. HDMI is the preferred method, however, this is dependent upon available outputs in the computer hardware. The preferred document camera is the Epson DC 20. The instruction podium will also have two available connections for faculty or student 'bring-your-own-device (BYOD)' capability. The podium will have an HDMI input and a VGA input with a connected audio input connection. It is recommended campus support have available appropriate connectors, adapters, or dongles for enabling connection to these inputs. For example, campus should include a mini-display to HDMI adapters for those MAC users wishing to use podium presentation systems.

Switch and Control: Every space will have an automated switching and control processors. The switch and control processor will automate the input source and output destination process. The control processor will also be used for managing program audio. The standard classroom will include the Extron IN 1606 scaling presentation switcher. The switcher will scale the resolution to the standard of 1280x800 regardless of the input resolution. All video and audio signal will be transmitted over CATx cable from the podium to all displays. The transmission of signal within the podium will be via HDMI cable, or CATx cable when more convenient. A preference for shielded CATx cable should be expressed and used whenever the shielded CATx cable is not cost prohibitive. System control will be managed by the Extron IPCP Pro 250 control processor. The control processor will be accessed by end users via the Extron Touch Link Pro series touch panels. A classroom may have a seven inch panel installed or 3.5" model installed. Every attempt will be made the match the Touch Link Pro model to any existing access in tops of podiums or walls. The touch panel will be programmed consistently across all campuses, with the touch panel providing access for system power-on, power-off, input source selection and output display selection. The touch panel will also provide audio control for volume. Touch panels will also be programmed with audio and video mute capability.

Audio: Every digital classroom will also include audio capability. The podium will have an amplifier. The podium amplifier will drive either ceiling mounted or flush mounted speakers. Each space will have at least two speakers, with the program audio capable of broadcasting stereo signal.

Acceptable Modifications:

1. **Matrix:** In the event a space requires matrix switching of independent inputs and displays, then an Extron DXP series matrix switcher with proper input and output options will be used. IN the event a DXP series switcher is used, then control will be provided by and Extron IPCP control processor.
2. **Interactive Displays:** An Epson Brightlink 595 is an acceptable modification of the standard to allow for interactive display. A SMART podium monitor for PC is also an acceptable modification to the standard for interactive display.
3. **Voice reinforcement:** In large spaces seating more than 80 students, a podium mic or Shure lapel microphone are an acceptable modification for voice reinforcement. The controls for voice reinforcement equipment will be included in touch panel controls.
4. **Adaptive Technologies:** There are a number of adaptive technologies which can be included in classrooms to match the needs of our students. The adaptive technologies will be determined by the disability services office.