A1.5 Classroom Standards

Note: The following standards have been developed and adopted by KU's Instructional and Mediated Spaces Committee (IMSAC), which includes representatives from DCM, Instructional Development & Support (IDS) and other campus offices.

Note: These standards were updated in their entirety May 2008.

General Classroom Characteristics

1) Location
   a) Classrooms should be concentrated on the entry levels of buildings to provide easy access for students and equipment.
   b) Classrooms should be located away from noise generators, such as mechanical rooms or student gathering places.
   c) For classrooms that need to be darkened, windows which face south, east and west require a higher degree of blackout capability than do north-facing windows.
2) Size
   a) Typically designed with 20 to 25 square foot per student, to accommodate the programmed number of occupants with:
      i) Approximately 20 SF/student for moveable seating
      ii) Approximately 10 SF/student for fixed seating
      iii) Approximately 20 SF/student for conference table seating
   b) Ceiling should have an average height of not less than 9', and allow for a projection screen large enough to display images of adequate size, and placed high enough off the floor to provide unobstructed sight lines.
3) Orientation
   a) The major entry should be at the rear of the room.
   b) Windows should be on the sides of classrooms, not at the front or back.
4) All classrooms shall comply with the American with Disabilities Act.
5) Audio-visual accommodations
   a) Support space must allow for the setup and use of audio-visual equipment.
   b) Classroom design shall consider present and future instructional technology
   c) Design shall focus on ease of use and effective instructional practice

Classroom Surfaces and Finishes

1) The following are the standard materials that shall be used, unless other alternative materials are specifically approved by the DCM Project Manager and DCM Director.
2) Walls:
   a) Acoustical treatment, using fabric-covered acoustical panels to create an NC rating between 20 and 30.
   b) Chair rails should be installed on the back wall 25" to 33" above the floor, wherever moveable seating is used.
3) Floor:
   a) Vinyl composition tile, unless existing finished concrete floor or carpet is acceptable.
   b) Aisle areas and the area at the front of the room may be carpeted; no carpeting shall be installed under fixed seating.
   c) Coverings should be of a medium to light color, with some pattern.
4) Ceiling:
      i) Ceilings should be light in color and made of non-reflective material.
      ii) Standard tile is Armstrong World Industries, Inc., Product #755, 2'x4' panel.
      iii) Standard grid shall be Chicago Metallic Corp., Product #250 Fire Front System; Color: White.
5) Doors:
   a) Doors should be a minimum of 36" wide with a 32" clear opening.
   b) Doors should have a glass panel no more than 100 square inches .
   c) Doors should have no ventilation louvers because of noise distractions.

Classroom Fixtures and Furniture

1) Marker boards
   a) Matte white to reduce problems with glare
   b) Minimum Size (can be increased to meet specific departmental needs):
      i) 12 foot long X 4 foot high for rooms seating 24 or fewer
      ii) 18 foot long X 4 foot high for rooms seating 25 to 75
      iii) Designed for the room, for rooms seating 76 or more
   c) Marker boards shall be provided with a full width tray and map rail with cork insert
   d) Marker boards shall be placed so they can be used when the projection screen is in use.

2) Projection screen
   a) Screen size will be determined by IDS based on room size, ambient light, viewing angles, ceiling height, etc. Consideration will be given to installing screens that will accommodate upcoming changes in video aspect ratio (i.e., for high definition display).
   b) Screens larger than 96” will include motorized controls; all others will be manual pull-down style.
   c) Consideration should be given to screen placement to maximize marker board use
   d) Screens shall be installed to allow the lowest side of the projected image to be at least 4’ above the floor.
3) Seating
   a) Moveable seating, either tables and chairs, or tablet-arm chairs, are recommended for rooms seating 48 or fewer.
   b) Fixed tables and chairs are recommended for rooms seating 60 or more.
   c) Tiered floors should be provided in rooms seating 75 or more.
   d) Side chairs should be provided for lecturers and guests.
   e) The distance between the projection screen and the first row of seats should be at least two times the width of the projected image, and the distance between the screen and the last row of seats should be at most eight times the width of the projected image.
   f) Tablet-arm chairs or fixed seating should have a minimum of 10% of the seats accommodating left handed students.
   g) Tablet-arms should provide a minimum of 150 square inches of working surface.
4) Instructor's station, or table and lectern, or podium
   a) Width: 48” to 58”
   b) Depth: 24” to 30”
   c) Maximum height to tabletop: 28”
5) Light-blocking window blinds set in channels shall be provided where windows exist (Opaque drapes with cord tighteners or blackout shades by special request).
6) Manual pencil sharpener located by the entry.
7) Waste receptacle located by the entry.

Classroom Mechanical Systems (HVAC)

1) Temperature controls
   a) Provide in accordance with other KU Design Standards and KU Energy policies.

b) Temperature controls should not be accessible to room occupants.

2) Ventilation

a) Adequate ventilation to allow for 4 to 6 air changes per hour.

b) If possible, air circulation system should be capable of being used independently of the heating and air-conditioning systems.

c) Windows in classrooms that seat 75 or fewer should be operable.

Classroom Lighting Systems

1) Lighting shall be designed to create a variety of zones within each classroom of 24 or more, as follows:

a) Overall light for the classroom.

b) Note-taking, controlled lighting that only illuminates the seating area of the classroom.

c) Lighting for the markerboard area.

d) Lighting for the instructor's station.

2) Lighting levels

a) Ability to provide a minimum of 30 foot candles on writing surfaces.

b) Ability to reduce general overall lighting by 50% for note taking during media presentations, with no light on the projection screen. Ability to further dim to 5%.

c) Seating areas shall be lighted so that 100% of the lamps are on, or 50% of the lamps are on and those lamps are dimmable to 5%.

d) Note taking light levels must be designed to avoid washing out visually projected images.

3) Lighting controls

a) The lighting controls shall be uniform, from classroom to classroom within each building.

b) All light switches shall be clustered, simple to use, with clearly labeled functions on the switch plates.

c) Controls for the some of the room lighting should be located near the major entrance doors, and duplicated near the presentation area.

d) Controls for note taking and presentation area lighting shall be adjacent to the presentation area.

e) Motion sensors shall be used to shut off classroom lighting during prolonged unoccupied periods.

4) Light fixtures

a) Unless the room architecture indicates otherwise, 2' x 4' lay-in troffer 2, 3, or 4-lamp fluorescent fixtures shall be used.

b) Light fixtures shall have electronic ballasts.

c) Generally fixtures shall have acrylic diffusers, however, fixtures in rooms with monitors shall have parabolic diffusers to minimize glare on the screens.

d) Recessed incandescent lighting should be used for special applications or purposes only, such as side and back border lighting and note taking in media classrooms.

Classroom Electrical Systems

1) Conduit

   a) Low voltage cables (e.g. audio, video, and control cables) are all required to run in a separate conduit from any AC wiring.

2) Circuits

   a) As much as possible, audio, video, and control electrical circuits should be fed from "clean" legs from the transformer free of high inductive loads. To the extent possible, there should be no elevator motors, compressor motors, blower motors, or other electrical devices on the side of the power transformer that feeds the media equipment.

   b) All electrical control circuits should come to a single location, convenient for maintenance and secure from vandalism.

3) Outlets

   a) Utility AC outlets on separate circuits from the media equipment circuits should be provided inside the classroom for overhead projectors, vacuum cleaners, etc.

   b) There should be at least one duplex outlet on each wall. In rooms with tiered seating, an outlet should be provided in the face of the first riser and on the face of a riser mid-way back in the middle of the seating, both centered in the room.

   c) Wall outlets should be positioned 18" above the floor.

   d) Power and audio/video outlets should be mounted on vertical surfaces rather than a tabletop or the floor to avoid the intrusion of water and debris.

   e) AC outlets shall be provided near or on the ceiling for rooms with monitors.

4) Minimum electronic services to be provided in classrooms:

   a) Classrooms seating 24 students or fewer shall have:

      i) Dual duplex data outlets at the front of the classroom.

   b) Classrooms seating between 25 and 75 students shall have:

      i) Dual duplex data outlets at the front of the classroom and at all audio-visual equipment locations.

      ii) Outlets to accommodate portable and/or installed media equipment.

Classroom Audio-Visual Systems

1) Rooms with an installed data projector shall have the screen installed diagonally in a corner, whenever possible, to avoid blocking the marker boards.
2) Data connections for a computer and remote monitoring system should be included.
3) Instructional media equipment installed in any classroom space shall conform to campus standards and be approved by IDS.

Standard Equipment and Technological Capabilities in Classrooms

KU has four categories of classrooms (excepting class labs):

- **Interactive Television**
- **Full Media**
- **Media Lite**
- **Basic**

1) Interactive Television

Instructional Capabilities:

- Connect to one or more remote sites via Internet for real-time audio/video interaction
- Display graphics, text, motion media (DVD/VHS) or 3D objects to local / remote sites
- Play audio CD's for local and remote sites
- Display output from installed or instructor-provided computer (Mac or PC) to local and remote sites

Equipment:

- Computer (PC with internal CD player)
- Network connection for installed or instructor-provided computer (Mac and PC)
- Ceiling-mounted data projector
- Document camera
- DVD/VHS video player
- Audio speakers
- Instructor and student microphones
- Instructor and student video cameras
- Codec (and integrated components) for multi-site video connectivity

2) Full Media

Instructional Capabilities:

- Display graphics, text, motion media (DVD/VHS), or 3D objects
- Play audio CD's
- Display output (including Internet sites) from installed or instructor-provided computer (Mac or PC)
- Student response system (clickers), upon request

Equipment:

- Computer (PC with internal CD player)
- Network connection for installed or instructor-provided computer (Mac and PC)
- Ceiling-mounted data projector
- Document camera
- DVD/VHS video player
- Audio speakers
- Overhead (transparency) projector

Note: All classrooms designated as auditoria are equipped as Full Media teaching environments.

3) Media Lite

Instructional Capabilities:

- Display output (including Internet sites) from instructor-provided computer (Mac or PC)
- Display motion media (DVD/VHS)
- Display transparencies
- Student response system (clickers), upon request

Equipment:

- Network connections for instructor-provided computer (Mac and PC)
- Ceiling-mounted data projector
- DVD/VHS video player
- Audio speakers
- Overhead (transparency) projector

Note: When available, a document camera may be installed temporarily in a Media Lite room upon request, to provide large-format display of 3-D objects, for example.

4) Basic

Instructional Capabilities:

- Display motion media (DVD/VHS)
- Display transparencies

Equipment:

- DVD/VHS video player and monitor
- Overhead (transparency) projector

Note: Portable data projection is available for all Basic classrooms, to provide large-format display of computer output from an instructor-provided laptop.

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