

LEARNING SPACE RATING SYSTEM

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Contents

Introduction

Section 1: Integration with Campus Context (ICC)

Section 2: Planning and Design Process (PDP)

Section 3: Support and Operations (SO)

Section 4: Environmental Quality (EQ)

Section 5: Layout and Furnishings (LF)

Section 6: Tools and Technology (TT)

Introduction

Higher education is under increasing scrutiny, as costs continue to increase and more students consider alternatives to traditional residential education. In addition, new course models (such as blended and flipped) provide opportunities to rethink the design of learning spaces. Given this environment, it's important to focus attention on the value of campuses and in particular those physical spaces where learning occurs and to engage key campus stakeholders, instructors, and students in their planning and design.

The Learning Space Rating System (LSRS) provides a framework to measure the *potential performance* of a learning space, that is, to assess what the space enables students and faculty to do in it. It serves as a way to measure progress towards consistency across learning spaces and towards designs that achieve academic goals. It also will provide the higher education community with a common language and method to document best practices.

This current version of the LSRS measures *formal* learning spaces, those designed to accommodate face-to-face meetings of all course participants (future versions will include informal spaces). It provides a set of credits that assess not only the design of individual rooms, but also the planning, support, evaluation, and strategic alignment that are crucial to the success of the learning that goes on in the room. Recognizing that there is great diversity in teaching and learning styles, the LSRS does not seek to prescribe specific teaching and learning practices, but rather to evaluate a room's ability to support a broad range of those practices.

We seek to frame the *learning space* as a collaborative and communal undertaking between faculty, students, administration, technologists, facilities personnel, and planners. Only by working across the institution can a campus environment be sustained that treats learning space holistically and provides an ecosystem to sustain faculty and student interactions. Since approaching learning spaces at the institutional level requires coordination across multiple groups, sections 1, 2 and 3 of this learning space assessment tool measure institutional readiness or development of a planning and operations process. Sections 4, 5, and 6 address specific features of physical spaces.

Section 1: Integration with Campus Context (ICC)

Section 2: Planning and Design Process (PDP)

Section 3: Support and Operations (SO)

Section 4: Environmental Quality (EQ)

Section 5: Layout and Furnishings (LF)

Section 6: Tools and Technology (TT)

Section 1: Integration with Campus Context (ICC)

Credits included in this section:

1. Alignment with Campus Academic Strategy
2. Integration with Learning Space Master Plan
3. Compatibility with Technology Strategic Plan
4. Commitment to Evidence-based Research and Assessment
5. Innovation in Integrating Learning Spaces with Campus Context

Total Credits in this Section: 5

Weighted Percentage of Total Points available: 10%

ICC Credit 1: Alignment with Campus Academic Strategy

Intent

To align learning spaces with strategic academic plans or initiatives, including institutional accreditation and accountability activities.

1 Point

Criterion for credit

Provide evidence of alignment with campus strategic academic plans, major campus academic initiatives, and/or institutional accreditation processes.

ICC Credit 2: Integration with Learning Space Master Plan

Intent

To ensure that learning space projects align with, inform, and complement a current or developing institutional learning space master plan.

1 Point

Criteria for credit

To obtain credit, do one of the following:

1. Provide evidence of alignment with an existing institutional strategic learning spaces master plan.

or

2. Provide evidence for how the design complements and extends the direction of campus wide learning environments, including teaching spaces, informal learning spaces, learning commons, libraries, study places, computing facilities, tutoring centers, service points, living/learning locations, etc.

ICC Credit 3: Compatibility with Technology Strategic Plan

Intent

To ensure that the institution's technology infrastructure supports planning, development, and operation of learning spaces.

1 Point

Criterion for credit

Provide evidence of alignment with an institutional information technology strategic plan.

Potential strategies and approaches

- Involve academic technology and information technology professionals as part of the planning team (see **Section 2, Planning Process**).
- Ensure that technology budgets provide for space upgrades, maintenance, and refresh cycles for equipment and furnishings.
- Integrate assessment of how emerging technologies impact space design in strategic planning.
- Include consideration of the institution's approach to online learning and course delivery (see **ICC Credit 4**).

ICC Credit 4: Commitment to Evidence-Based Research and Assessment

Intent

To develop a regular, iterative process of research and assessment to inform development of learning space and to contribute to an institutional culture of evidence based design.

1 Point

Criteria for credit

To obtain credit, do both:

1. Provide evidence of a regular practice of piloting and prototyping learning spaces that is recognized and embraced by multiple campus stakeholders.

and

2. Create and maintain a campus space assessment and evaluation plan that is recognized by multiple campus stakeholder groups.

Potential strategies and approaches

- Regarding Pilots and Prototypes, see **Section 2 PDP Credit 3**.
- Conduct a post-occupancy space performance evaluation, using the Learning Space Rating System or another instrument.
- Provide regular, on-going forums for user feedback on a specific learning space to improve support and operations.

ICC Credit 5: Innovation in Integrating Learning Spaces with Campus Context

Intent

To provide creative, innovative leadership in integrating learning spaces with the campus academic, strategic, or information technology context.

1 Point

Criterion for credit

Provide evidence of an initiative or project demonstrating innovation and leadership in integrating learning spaces with the campus context in a way that falls outside of ICC Credits 1-4.

Potential strategies and approaches

- Engage multiple new and/or diverse stakeholders across campus in learning space projects with broad impact.
- Organize a campus symposium on learning spaces.
- Integrate faculty with appropriate expertise into campus learning space strategic planning, research, and assessment.

Section 2: Planning and Design Process (PDP)

Credits included in this section:

1. Stakeholder Engagement
2. Evidence-based Design
3. Pilots and Prototypes
4. Learning Space as a Teaching Tool
5. Evaluation Plan
6. Dissemination of Findings
7. Innovation in Design and Planning

Total Credits in this Section: 9

Weighted Percentage of Total Points available: 15%

PDP Credit 1: Stakeholder Engagement

Intent

To involve users of the learning spaces and strategic partners in the planning process.

1 Point

Criterion for credit

Document substantive engagement of the users, operators, and senior administrators to provide input on needs, feedback on proposed solutions, and evaluation of what's been done. Provide summaries of meeting notes, reports, or other written evidence of engagement.

Potential strategies and approaches

- Develop a communications plan to inform stakeholders of relevant information and to allow them to provide ongoing input.
- Engage stakeholders through workshops, interviews, surveys, observational studies, photo diaries, town hall meetings, or other means.
- Solicit feedback during development of the planning and/or design process to provide feedback on concepts, progress plans, and/or pilot projects.
- Gather input after space occupancy to ensure programmatic and user needs continue to be met.
- Engage stakeholders to give feedback on how well existing learning spaces are performing.

PDP Credit 2: Best Practices in Planning

Intent

To base planning or design for a specific project on research and/or documented best practices in learning space strategy and design.

1 Point

Criteria for credit

To obtain credit, do one of the following:

1. Provide documentation of consultation with published best-practices, benchmarking tours, or consultation with a recognized learning space planner/design expert

or

2. Provide documentation that associates specific design strategies employed with corresponding best-practices

Potential strategies and approaches

- Investigate literature on best practices in learning space design.
- Benchmark successful spaces or inspirational examples (e.g.: via tours, reports, etc).
- Engage on-campus or external learning space planning/design experts.
- Allocate project funds to support these activities.

PDP Credit 3: Pilots and Prototypes

Intent

To use the design, installation and testing of a working pilot learning space to apply lessons learned, mitigate risk, and increase consensus on the design.

1 Point

Criterion for credit

Provide evidence of simulating and assessing proposed design elements through pilot project(s).

Potential strategies and approaches

- Physical mock-up: Create physical approximations of design features (e.g., full-scale mock-ups with temporary materials to look like proposed space).
- Functional prototype: Modify an existing space to test functionality of the proposed design.
- Functional replica: Build working prototype of proposed learning space with proposed materials, technology, and dimensions to evaluate through actual use (e.g., prior to building additional spaces).
- Component test: Acquire key components in reduced quantities (e.g., chairs, furniture, etc.).
- Evaluate any of the above pilots through observational studies, surveys, diaries, interviews, questionnaires, etc.

PDP Credit 4: Learning Space as a Teaching Tool

Intent

To utilize the learning space to explicitly demonstrate how space can enable more effective teaching and learning.

1 Point

Criteria for credit

To obtain credit, do one of the following:

1. Provide documentation of course(s) or curricula developed in conjunction with the planning and/or evaluation of the learning space.

or

2. Conduct and document faculty development sessions in the room, providing hands-on experience and group experimentation by potential instructors.

Potential strategies and approaches

- Create a class or design competition for innovative learning space design.
- Provide signage, displays, or other public means to explain how the the learning space design enables more effective teaching and learning.
- Provide the opportunity (through physical or technological means) to observe or demonstrate how the space is being used.

PDP Credit 5: Evaluation Plan

Intent

To understand whether the potential of the space has been realized in practice

1 Point

Criterion for credit

Create a plan to evaluate the degree to which the design aspirations or goals have been met and provide plan documentation.

Potential strategies and approaches

- Assess the space performance in relation to the project goals.
- Identify observable, concrete measures of success.
- Employ multiple means of evaluation (e.g., quantitative, qualitative, observation).
- Gather baseline data (e.g., usage and satisfaction) and compare with post-occupancy evaluation of same.
- Utilize established survey instruments, scoring rubrics, or other assessment tools.

PDP Credit 6: Dissemination of Findings

Intent

To share findings and lessons learned from the research, planning, piloting, or evaluation of learning space(s).

1 Point

Criterion for credit

Create a report of findings and make publicly available so that other institutions can benefit from this work. At a minimum, the report must contain engagement strategies, best-practices employed, key design principles that informed the design, and pilot projects.

Potential strategies and approaches

- Make findings and project design information available through institutional websites.
- Publish articles or papers.
- Host or participate in conference or symposium with published and/or recorded proceeding.
- Contribute to a repository of learning space case studies.

PDP Credit 7: Innovation in Planning and Design

Intent.

To create exemplary spaces or planning strategies that provide novel or unique features and benefits that advance the practice of learning space design.

1 Point

Criteria for credit

Provide evidence of an initiative or project demonstrating innovation and leadership with respect to design or planning of learning spaces in a way that falls outside of previous **PDP Credits 1-6**.

Potential strategies and approaches

- Demonstrate novelty or uniqueness based on comparison to surveyed literature and best-practice.
- Employ emerging technology as identified through 3rd-party technology trending publication (e.g., NMC Horizon Report, ECAR National Study of Undergraduate Students and Technology, and/or Gartner Emerging Trends and Technology Report).

Section 3 – Support and Operations (SO)

Credits included in this section:

1. Support
2. Space Orientation and Training
3. Training of Support Team
4. Faculty Development
5. Sustainability of Operations
6. Diverse Patterns of Use
7. Scheduling Systems
8. Innovation in Support and Operations

Total Credits in this Section: 14

Weighted Percentage of Total Points available: 15%

SO Credit 1: Support

Intent

To provide ongoing, timely, physical and/or virtual support for learning spaces.

1 Point

Criteria for credit

To obtain credit, do one of the following:

1. Provide ability to contact responsible support professionals for help from within the learning space.

or

2. Provide ability for support professionals to remotely monitor room systems to identify and respond to problem issues.

or

3. Provide documentation in the space that describes the capabilities of the room, answers frequently asked questions, and describes typical usage scenarios of activities, technologies, and furniture configurations.

or

4. Provide documentation online that documents the capabilities of the room, answers frequently asked questions, describes typical usage scenarios of activities, technologies, and furniture configurations.

Potential strategies and approaches

- Provide a support line so that users can have a direct communication to classroom support professionals.
- Provide virtual support via remote desktop or similar technology such that media / technology configurations can be viewed and adjusted remotely.
- Provide more than standard support during initial commissioning period for new spaces, and at the beginning of a new term (when faculty may be trying new approaches) for existing spaces.
- Provide logging systems to collect analytics data on how features of the room are used by instructors and students.
- Cluster learning spaces together and assign a learning space professional to act as main point of contact for managing furniture, technology, and equipment.
- Create video resources that demonstrate potential activities and configurations of space, as well as frequently encountered issues and their solutions.
- Create and implement a furniture management plan that provides direction on how furniture should “reset” to a default configuration and how it will be reconfigured and managed.

SO Credit 2: Space Orientation and Training

Intent

To ensure that orientation and training on the specifics of a learning space are available to the students, faculty, and staff using them.

1 Point

Criteria for credit

To obtain credit, do one of the following:

1. Offer a regularly scheduled user orientation that introduces the functionality of the furniture, technology, and other equipment and environmental systems associated with the space. At a minimum, upon completion of the session, users should be:
 - aware of the different furniture configurations for the room
 - able to operate control systems for projection, audio, lighting, conferencing, etc.
 - know how to obtain additional support

or

2. Provide online tutorials with suggested room configurations, including explanations of feasible options and activities the room can support. This resource may be combined with online resources created for **SO Credit 1**. As with option 1, users should be:
 - aware of the different furniture configurations for the room
 - able to operate control systems for projection, audio, lighting, conferencing, etc.
 - know how to obtain additional support

Potential strategies and approaches

- Provide a rehearsal space with equivalent technologies where faculty can receive an orientation and associated training and coaching. Rehearsal spaces may also provide video capture for later review.
- Provide incentives for faculty to attend orientation sessions.
- Orientation sessions could include presentations or instructional scenarios to show how technology systems in the room could be utilized to support pedagogical activities.

SO Credit 3: Training of Support Team

Intent

To ensure that the learning space support team can troubleshoot, solve, and address commonly encountered problems in the learning space reactively and proactively.

1 Point

Criteria for credit

To obtain credit, do all of the following:

1. Create, execute, and evaluate an internal training program for staff, including defining the necessary competencies, hypothetical problem scenarios and solutions, and success measures.

and

2. Create and maintain a service level agreement and framework that defines levels of support and service between the service organization and the users of the space.

and

3. Provide customer service training for support staff.

and

4. Provide tools and technology training for support staff.

Potential strategies and approaches

- Create user profiles that describe the needs and typical activities for different types of users.
- Map the user/customer journey and identifying service points where services are provided.
- Require staff to achieve certification in tools or technology. InfoComm CST audiovisual certification is one example.

SO Credit 4: Faculty Development

Intent

To enable continuous learning and development of faculty in the use of new technology, tools, and capabilities of learning spaces.

1 Point

Criteria for credit

To obtain credit, do one of the following:

1. Offer educational opportunities for faculty to learn about new techniques and technologies and discuss opportunities and challenges with peers and support staff.

or

2. Provide online resources such as articles, FAQs, and support contact information to assist faculty.

or

3. Provide instructional/ learning space design consultation with faculty, by appointment as requested.

Potential strategies and approaches

- Provide space and consultation to assist faculty in developing classroom materials and activities.
- Facilitate the observation, evaluation, and coaching of faculty in reviewing their teaching practices through the use of rehearsal spaces, video capture, or observation in the teaching space itself.
- Offer case studies for the space that describe learning objectives, potential activities, and benefits.

SO Credit 5: Sustainability of Operations

Intent

To operate learning spaces sustainably according to a plan that makes efficient use of time, money, and space, and which has sufficient flexibility to adapt to new opportunities and priorities.

1 Point

Criteria for credit

To obtain credit, do both of the following:

1. Create, execute, and evaluate a resource management plan for learning spaces which covers anticipated expenditures for technology, furniture, and operations.

and

2. Maintain a clear process to change and update the resource management plan on an annual basis that reflects changes in technology and use patterns.

Potential strategies and approaches

- Benchmark resource management planning and allocation at peer schools.
- Develop appropriate chargeback policies for events outside the unit, especially those that are charging participants to come to campus (e.g., summer conferences).

SO Credit 6: Diverse Patterns of Use

Intent

To operate and support learning spaces to enable the highest possible utilization and to provide users more choices in where and when to learn.

1 Point

Criteria for credit

To obtain credit, do both of the following:

1. Meet or exceed 65% utilization during a 45 hour week for regularly scheduled classes.

and

2. Provide maximum access to learning space for students and faculty by doing two of the following:
 - Enable night-time use
 - Enable overnight use
 - Enable weekend use
 - Enable use when regular classes are not in session (e.g., summer)

Potential strategies and approaches

- Develop space management policies that encourage the use of learning spaces by multiple user populations (e.g., use of classrooms or staff conference rooms by students studying at night).

SO Credit 7: Scheduling Systems

Intent

To provide users with a system that enables them to match their teaching and learning needs with learning space availability and capabilities.

1 Point

Criterion for credit

Create and maintain a class scheduling software/database, which includes information on space attributes such as total area, area per station/seat, flexibility of furnishings, potential configurations, available technologies, and equipment capabilities.

Potential strategies and approaches

- Incorporate information in the class scheduling database on walking time/distance to the “heart” or center of campus.
- Investigate how different course schedules of colleges or programs may be a deterrent or promote active learning pedagogies. For example, some active learning activities may benefit from more extended class periods to facilitate arrangement of the space.
- Gather information to discover why certain rooms might be more or less popular than others. Conduct data gathering in an ongoing way.

SO Credit 8: Innovation in Support and Operations

Intent

To provide creative, innovative leadership in the effective support and operational of learning spaces.

1 Point

Criteria for credit

Provide evidence of an initiative or project demonstrating innovation and leadership with respect to the support and operation of learning spaces in a way that falls outside of previous **SO Credits 1-7**.

Potential strategies and approaches

- Design and implement an innovative program for engaging with faculty and students on ways to utilize the learning space.
- Design and implement an innovative program for training support staff to monitor the learning space and provide timely and efficient support.
- Design and implement a system of analytics that monitors the use of different aspects of the learning space's equipment and layout to determine if the learning space's design overlaps with with ways the room is actually used.

Section 4: Environmental Quality (EQ)

Credits included in this section:

1. Daylight and Views
2. Good Visibility
3. Lighting Control
4. Thermal Comfort
5. Acoustic Quality
6. Environmental Stimulation
7. Innovation in Environmental Quality

Total Credits in this Section: 8

Weighted Percentage of Total Points available: 20%

EQ Credit 1: Daylight and Views

Intent

To support learning and improve concentration and engagement by providing natural light with windows and views to the exterior.

1 point

Criteria for credit

To obtain credit, do all of the following:

1. Meet or exceed LEED IEQ 8.1 — views, indoor/outdoor (provide daylight in 75% of space).

and

2. Meet or exceed LEED IEQ 8.2 — daylight and views (provide multiple, unobstructed lines of sight to the exterior (i.e., through glass) and views that include vegetation, human activity, or objects less than 70 feet away).

and

3. Provide direct access (e.g., windows) or indirect access (e.g., skylights or clerestory windows) to natural light and the means to control it with veiling screens, blinds or blackout screens.

EQ Credit 2: Good Visibility

Intent

To provide adequate visibility from participants to presenters, to course content, to demonstrations, and to other participants.

1 point

Criteria for credit

To obtain credit, do one of the following:

1. *Versatile spaces with no “front of the room”*: Enable participants to see presenters and/or visual displays and/or writable surfaces by turning their chairs up to 180 degrees.

or

2. *Seminar/discussion/activity-focused spaces*: Provide unobstructed views for all participants to see one another.

or

3. *Presentation-focused spaces*: Configure seats, tiers, walls, and visual displays to conform to best practices for sightlines and screen distances asserted by InfoComm (AV Design Reference Manual, Chapter 13: Interior Design).

or

4. *Hybrid presentation/discussion/activity spaces*: Conform to InfoComm best practices for sight lines, per above, and provide unobstructed views for group participants in discussion areas.

Potential strategies and approaches

- Maximize ability of participants within the audience to face one another (e.g., case study room layouts).
- Consider trade-offs between sightline quality and ease of supporting both small group work and presentations. For instance, in tiered rooms, it may be desirable to provide two rows of students per tier with slightly compromised sightlines (see **Section 6 TT Credit 3: Visual Displays**).
- Provide adequate ceiling height such that the audience can see both presenter and screens simultaneously. See InfoComm AV Design Reference Manual, Chapter 13: Interior Design.

EQ Credit 3: Lighting Control

Intent

To ensure optimal flexibility of lighting appropriate to different learning activities.

1 point

Criteria for credit

To obtain credit, do one of the following:

1. Meet or exceed LEED IEQ 6.1 “Controllability of Systems, Lighting” (provide individual controllability of lighting for 90% of occupants).

or

2. Provide separate preset lighting zones with dimming capabilities for the main seating area and for perimeter boards/screen area.

Potential strategies and approaches

- Create consistency of lighting control systems across classroom stock.
- Provide a means for easily moving between different lighting scenarios (i.e., presets for different use cases)

EQ Credit 4: Thermal Comfort

Intent

To ensure that thermal conditions of spaces are conducive to learning.

1 point

Criteria for credit

To obtain credit, do all of the following:

1. Meet or exceed LEED IEQ credit 6.2: “Controllability of Systems – Thermal Comfort” (provide windows, a thermostat, or other means to control temperature or humidity).

and

2. Comply with ASHRAE Standard 55 - 2010, “Thermal Environmental Conditions for Human Occupancy,” for maintaining uniform temperature across the learning space.

and

3. Provide controls such that occupants can set and/or adjust temperature at a level which is conducive to their learning.

Potential strategies and approaches

- Note that if occupants remark on the temperature of the space then it is either too hot, too cold, or fluctuating too much – and therefore taking attention away from learning.

EQ Credit 5: Acoustic Quality

Intent

To enable occupants to hear presenters, audio content, and one another through effective acoustic design of the room.

1 point

Criteria for credit

To obtain credit, do all of the following:

1. Follow American National Standards Institute (ANSI)/ASA S12.60-2010/Part 1 (Acoustical Performance Criteria, Design Requirements, and Guidelines for Schools) standards for acoustics in core learning spaces and ancillary learning spaces. These include noise isolation design requirements and specific limits on background noise and reverberation from building services and utilities.

and

2. Design acoustics to enable participants farthest from the sound source to have a comparable listening experience to participants closest to the source. Provide sound amplification system if needed: **See Section 6 TT Credit 4: Sound Amplification.**

Potential strategies and approaches

- Refer architects to ANSI/ASA S12.60-2010/Part 1 for design guidelines for various size spaces including large classrooms and lecture spaces and for use of sound-absorbing materials and acoustical treatments.
- See ANSI guidelines also for recommendations about effects of carpeting and furnishings on acoustics.

EQ Credit 6: Environmental Stimulation

Intent

To create an aesthetically pleasing and stimulating atmosphere that helps promote student engagement in learning activities.

1 point

Criterion for credit

Provide evidence (such as survey or course evaluation data) that indicates that users perceive the physical environment to be pleasing, stimulating, engaging and/or otherwise conducive to learning.

Potential strategies and approaches

- Use benchmarks from the National Survey of Student Engagement (NSSE) such as those for "creating a supportive campus environment."
- Use color to enhance the learning environment and provide variety.
- Create a rich visual environment using curves and shapes to go beyond a white-walled box for classrooms.
- Use high quality finishes and furnishings to convey a sense of professionalism.
- Showcase the institution's cultural diversity and values with artifacts, designs, and artworks that illustrate it.
- Showcase student work through physical or digital displays.

EQ Credit 7: Innovation in Environmental Quality

Intent

To create innovative ways to enhance the environmental qualities of learning spaces.

1 Point

Criteria for credit

Provide evidence of an initiative or project demonstrating innovation and leadership with respect to the environmental qualities of learning spaces in a way that falls outside of previous **EQ Credits 1-6**.

Section 5: Layout and Furnishings (LF)

Credits included in this section:

1. Proportion of Space
2. Movement through Space
3. Seating Density
4. Furnishings Layout
5. Furniture Components
6. Movable Partitions
7. Transparency
8. Access to Adjacent Informal Learning Areas
9. Writable Surfaces
10. Physical Storage
11. Innovation in Layout and Furnishings

Total Credits in this Section: 17

Weighted Percentage of Total Points available: 20%

LF Credit 1: Proportion of Space

Intent

To configure the proportions of a space to facilitate its primary learning activities.

1 point

Criteria for credit

To obtain credit, do one of the following:

1. *Versatile spaces with no “front of the room”*: Prioritize equal access from seats to writable surfaces, visual displays, and other seats.

or

2. *Seminar/discussion/activity-focused spaces*: Minimize distance between all occupants and maximize participants’ ability to face each other.

or

3. *Presentation-focused spaces*: Optimize proximity between the speaker and the greatest percentage of the audience.

or

4. *Hybrid presentation/discussion/activity spaces*: Devote sufficient space for group participants to face one another and/or to access writable surfaces or shared visual displays.

Potential strategies and approaches

- Design spaces closer to a square proportion to facilitate interaction and reconfigurability.
- For presentation-focused spaces, make spaces wider than they are deep so as to minimize the distance between the speaker and the audience, while still providing for good sightlines (refer to **Section 4 EQ Credit 2: Good Visibility**).
- Provide ceiling height in proportion to room area.

LF Credit 2: Movement Through Space

Intent

To enable the easy movement of instructors and learners within the space to support communication and to facilitate interaction.

1 point

Criteria for credit

To obtain credit, do one of the following:

1. *Versatile space with no “front of the room”*: provide adequate space between tables or work areas for all participants to circulate, interact, and recombine in different teams.

or

2. *Seminar/discussion/activity-focused spaces*: Enable participants to walk between table and walls in order to access writable surfaces, displays, and one another.

or

3. *Presentation-focused spaces*: rows should not exceed 20 uninterrupted chairs in a row. Rows of 5 or more seats should have aisles on either side (not dead-ends).

or

4. *Hybrid presentation/discussion/activity spaces*: provide sufficient space and pathways for instructors and peers to circulate when the space is configured for group discussion or activity.

Potential strategies and approaches

- Where a tiered or sloped floor configuration is desirable, consider sloped aisles rather than stepped to allow more universal access options and easier circulation.
- With a tiered or sloped floor configuration, consider limiting the slope or ratio of the rise (vertical) over run (horizontal) to 1:2 so as to avoid overly steep stairs.

LF Credit 3: Seating Density

Intent

To ensure that the density of seating and the space allocated per seat support the desirable range of potential learning activities.

1 point

Criteria for credit

To obtain credit, do one of the following:

1. *Versatile space with no “front of the room”:* provide at least 25 square feet per participant.

or

2. *Seminar/discussion/activity-focused spaces:* provide at least 25 square feet per participant.

or

3. *Presentation-focused spaces:* provide at least 20 square feet per participant.

or

4. *Hybrid presentation/discussion/activity spaces:* provide at least 30 square feet per participant.

Potential strategies and approaches

- Provide adequate space based upon seating density, type of furnishings, size of the learning space, and range of potential learning activities.
- As the space per seat increases so does (a) the different ways in which people can interact with others, information, and tools/equipment and (b) the different ways the space can be reconfigured to enable these interactions.
- For reconfigurable, active learning spaces in which tables, chairs, and displays may be moved or configured into different layouts (e.g: “U-shaped” to clusters of tables).
- Tablet arm chairs, although efficient in area allocation, are acknowledged to be poor in supporting active learning pedagogies and the use of technology. The migration of existing spaces to other types of seating more appropriate for active learning will require a higher area per seat.
- Allow sufficient space for room reconfiguration options. The greater the need for flexibility of layout, the more space per seat is needed. Special equipment, such as fixed computers or lab equipment, may require more space per seat.

LF Credit 4: Furnishings Layout

Intent

To ensure that the layout of furnishings supports a wide range of potential learning activities.

1 point

Criteria for credit

To obtain credit, do one of the following:

1. *Flat floor spaces with fixed tables:* Facilitate multiple options for small group or plenary session work (e.g., groups of 3 to 9 at a round table) with movable chairs.

or

2. *Flat floor spaces with movable furnishings:* Ensure furnishings are easily movable and configurable by users into small groups of various sizes, as well as alternative large group activities.

or

3. *Tiered floor spaces with fixed seating:* Configure layout and aisles so that instructor(s) and peers can circulate and reach within 15 feet of every participant to facilitate interaction and dialogue.

or

4. *Tiered floor spaces with movable seating:* Create team discussion/work areas on each tier with clusters or sets of moveable tables.

Potential strategies and approaches

- Fixed seats that swivel allow group conversations in lecture-style rooms.
- Configure tiers to two rows of seats to allow participants to turn and face the row behind (e.g., with continuous counter work surfaces).
- Consider the potential for reconfiguration or a change in function in the future. For example, tiered lecture hall seating can be built with steel frame structures rather than poured concrete.
- Allow for adequate space for instructors and learners to circulate within the rooms when choosing furniture and sizing rooms (see **Section 5 LF Credit 2: Movement through Space.**)
- Regarding best practices for maintaining sight lines, see **Section 4 EQ Credit 2 Good Visibility.**
- Consider using non-hierarchical table layouts (e.g., round or square tables) in order to facilitate discussion.

LF Credit 5: Furniture Components

Intent

To provide furniture that is comfortable, easily movable, and durable and that provides adequate work surface to accommodate several devices and paper resources that learners may bring.

1 point

Criteria for credit

To obtain credit, do all of the following:

1. Provide seating that is comfortable, easily movable by users, and durable.

and

2. Provide tables that are stable, easily movable, and durable.

and

3. Provide sufficient work surface area per seat, sized to enable use of a laptop, tablet or other portable devices, as well as paper materials simultaneously.

Potential strategies and approaches

- Seating types can range from tablet arm chairs, tables with chairs, continuous counter seating with either movable or fixed pivoting chairs.
- Work surfaces are recommended to be at minimum thirty inches wide by twenty-four inches deep minimum to accommodate mobile computers. For this reason tables and chairs are preferred over tablet armchairs.
- In general it is recommended that movable chairs be provided wherever possible, rather than fixed chairs.
- Typical tablet arm chairs are not recommended; consider types on wheels that are designed with larger work surface area. Some left-handed tablet arm chairs should be provided.
- Consider stackable type chairs and tables, because they can be stored compactly to the side if the room needs to be used for other purposes.
- Specialty items like presenter lecterns should also be considered for ease of mobility.

LF Credit 6: Movable Partitions

Intent

To equip a space with capability of partitioning areas off for different learning activities and group sizes.

1 point

Criteria for credit

To obtain credit, do one of the following:

1. Provide built-in movable wall partition(s), either sliding panels on ceiling tracks or motorized retractable ceiling-mounted types. Documentation for credit must include descriptions how the movable partitioning supports a greater range of learning activities or can enable a more intensive use of a space at different times.

or

2. Provide a movable panel system with components that can be manipulated by users of the space, such as writable panels on wheels, a panel system designed to hang from a ceiling grid or wall hangers, or other solution that allows definition of the subdivision of the activity areas.

Potential strategies and approaches

- When making spaces sub-dividable, consider whether the proportions of the resultant spaces will be satisfactory for accommodating desired learning activities.
- Consider acoustic quality and ease of operation of panel systems to ensure users accept potential trade-off of diminished acoustic performance in exchange for greater flexibility, depending on product/system selected.

LF Credit 7: Transparency

Intent

To provide visual connections between adjacent but physically separate spaces so as to enable exposure and visibility into learning activities.

1 point

Criteria for credit

To obtain credit, do one of the following:

1. Provide views through the building from circulation areas through the use of transparent materials or the introduction of atria or openings between floors to allow sightlines between floors or major areas.

or

2. Provide transparent vision panels that allow views into and out of the spaces where learning activities occur.

or

3. Showcase products of learning activities (e.g., digital displays with video loops, walls for poster displays, ceiling grids from which objects can be hung, convenient tack boards, whiteboards in public spaces, etc.)

Potential strategies and approaches

- Consider the extent to which users can control the amount of transparency of the space.

LF Credit 8: Access to Adjacent Informal Learning Areas

Intent

To allow learning activities to extend into adjacent or ancillary areas, encouraging interaction and extension of the learning experience.

1 point

Criteria for credit

To obtain credit, do one of the following:

1. Intersperse informal learning spaces with formal teaching spaces. For example, include break-out areas or “front porch” spaces near classrooms for connecting before or after class.

or

2. Provide sliding doors or movable walls to connect activities in adjacent areas. For example, use sliding barn doors to open up a classroom and transform it into an after hours informal study space.

LF Credit 9: Writable Surfaces

Intent

To provide writable surfaces to facilitate interaction for individuals and groups.

1 point

Criteria for credit

To obtain credit, do one of the following:

1. Provide physically accessible surface/display visible to all participants upon which the presenter can write physically and/or digitally.

or

2. Provide multiple physically accessible surfaces/displays visible to all participants upon which participants can write physically and/or digitally.

Potential strategies and approaches

- Provide large, wall mounted whiteboards/blackboards and/or flipcharts.
- Provide writable wall surfacing (e.g., whiteboard paint) on one or multiple walls.
- Provide movable writable panels, either on casters, or wall, or ceiling mounted system.
- Provide interactive wall screens with writable surface to enable manipulation of information.
- Provide writable table surfaces (e.g., glass, whiteboard, stone).
- Provide digitally-interactive table surfaces that enable writing with gestures and/or stylus.

LF Credit 10: Physical Storage

Intent

To provide storage space adjacent to learning spaces for equipment or furnishings.

1 point

Criteria for credit

To obtain credit, do one of the following:

1. Provide enclosed walk-in storage room sufficient to store extra furnishings and carts.

or

2. Provide enclosed closet.

or

3. Provide lockable furniture cabinet within room.

Potential strategies and approaches

- As a guide for flexible or multipurpose rooms with 50 seats or more, provide furniture and equipment storage equivalent to 5 to 10% of the room area.
- When sizing storage space, the following functions should be considered:
 - To support technology-enabled learning, e.g. large displays that can be wheeled into the learning space to support team based learning clusters.
 - To store and recharge computational devices, e.g. such as laptops issued to all members of a class for individual or shared use.
 - To enhance a disciplinary-specific course, e.g. with artifacts, resources, teaching kits or handout.
 - To store additional furniture components so that the layout can be changed rapidly to accommodate a different type of activity, e.g. folding tables on casters, stackable chair,
 - To store movable whiteboards, nesting type on casters that store compactly.

LF Credit 11: Innovation in Layout and Furnishings

Intent

To provide creative, innovative leadership in the layout and furnishing of learning spaces.

1 point

Criterion for credit

Provide evidence of an initiative or project demonstrating creative innovation and leadership in the layout and furnishing of learning spaces in a way that falls outside of the **LF Credits 1-10**.

Potential strategies and approaches

- Work with furnishing vendors to introduce improvements in existing classroom furniture lines.
- Show how original layouts and furnishing specifications support key campus strategic objectives in teaching and learning.
- Create a plan for layout and furnishing that obtains points for each of the LF Credits.

Section 6: Technology and Tools (TT)

Credits included in this section:

1. Electrical power
2. Network Connectivity
3. Visual Displays
4. Sound Amplification
5. Audio/Visual Interface and Control
6. Distributed Interactivity
7. Session Capture and Access
8. Innovation in Technology and Tools

Total Credits in this Section: 9

Weighted Percentage of Total Points available: 20%

TT Credit 1: Electrical Power

Intent

To insure that all participants in a space have access to electrical power to support the wide variety of technologies used in learning activities.

1 Point

Criteria for credit

To obtain credit, do all of the following:

1. Provide dedicated electrical power receptacles for all built-in or resident technology.

and

2. Provide convenient access to electrical power for portables/mobile devices by either providing dedicated receptacles for each participant or a means of sharing receptacles (e.g., at table clusters) or battery provisions.

and

3. Provide appropriate raceways, receptacle locations, or cable management such that cables do not obstruct traffic paths.

Potential strategies and approaches

- Outline a range of desirable or anticipated activities and their power requirements to determine appropriate capacity for a range of usage scenarios.
- Use a distribution grid in the floor to provide flexibility in positioning power receptacles and to accommodate multiple layout options.
- Leverage designs and systems that minimize the need for power during peak usage times.
- Provide charging stations in the building.

TT Credit 2: Network Connectivity

Intent

To enable adequate network performance for all participants and intended learning activities.

1 Point

Criteria for credit

To obtain credit, do both of the following:

1. Provide wired connectivity to strategic areas of the room that may require high-bandwidth/low-latency connections, or where a networked device will be located.

and

2. Provide reliable and robust wireless connectivity with appropriate bandwidth, latency, and capacity to support mobile connections for all occupants.

Potential strategies and approaches

- Outline range of desirable or anticipated activities and their potential bandwidth requirements to determine appropriate bandwidth capacity.
- Determine cabled connectivity requirements at strategic points (e.g., presenter station, participant clusters, etc.) to allow for several different configurations.
- Design flexibility to allow for increased connectivity as demanded by course applications (e.g., firewall settings, traffic shaping).
- Consider internal networked AV solutions that allow for sharing of high-bandwidth content over a local network.

TT Credit 3: Visual Displays

Intent

To enable robust sharing of visual data by making it easily available, visible, and/or readable by all participants.

1-2 Points

Criteria for credit

To obtain credit, do the following:

Provide at minimum a single visual display appropriate to the intended room use and function, layout, dimensions, and content types. Displays should allow multiple input types such as VGA, composite and HDMI, with the ability to adapt easily to evolving cabling and input standards.

To obtain an additional credit, do one of the following:

1. *Versatile spaces with no “front of the room”:* Provide multiple displays, fixed and/or mobile, as allowed by the capacity and configuration of the room.

or

2. *Seminar/discussion/activity-focused spaces:* Provide two or more fixed or mobile displays.

or

3. *Presentation-focused spaces:* Provide two or more displays for presentation.

or

4. *Hybrid presentation/discussion/activity spaces:* Provide two or more displays for presentation and additional distributed displays available in areas used for discussion or other activities.

Potential strategies and approaches

- For presentation spaces, follow best practices for display size and viewing angles asserted in the InfoComm AV Design Reference Manual, Chapter 13.
- Provide lighting and window treatment controls at projection and display locations. The control of ambient light affects image contrast. See **Section 4 EQ Credit 3: Lighting Control**.
- When considering interior design and colors, use darker, matte (non-reflective) paint colors near screens to aid with image contrast.

TT Credit 4: Sound Amplification

Intent

To enable high quality audio reinforcement in support of learning and teaching activities.

1 Point

Criteria for credit

To obtain credit, do all the following:

1. Provide a sound amplification/speech reinforcement system if needed to ensure that all participants can hear presenters, audio content, and one another. See **Section 4 EQ Credit 5: Acoustic Quality**.

and

2. Ensure evenly distributed sound for participants by basing the number and location of audio speakers on the purpose and characteristics (including size and acoustics) of the room.

and

3. Adhere to ANSI/ASA S12.60-2010/Part 1 standard for classroom audio distribution systems (5.5.1) for uniformity of coverage and sound pressure levels.

Potential strategies and approaches

- Refer to 1991 ADA Standards for Accessible Design 4.1.3 (19) (b) and 2010 Standards section 219, and relevant state guidelines, for the use of Assistive Listening System (ALS) shields to accommodate participants with hearing impairments.

TT Credit 5: Audio/Visual Interface and Control

Intent

To enable faculty and students to seamlessly manage audio/visual content across multiple output systems including installed displays, computers, and mobile devices.

1 point

Criteria for credit

To obtain credit, do all of the following:

1. Provide controls for device and room settings with both presets and custom configuration capabilities.

and

2. Provide for the management of displays through a multiple input and multiple output control system.

and

3. Provide a graphical user interface (GUI) that is easy to comprehend and use.

and

4. Provide multiple permission levels for room systems that allow instructors and students to interact and contribute content.

Potential strategies and approaches

- Provide ability to manage content across multiple outputs.
- Provide ability to manage content across personal devices, team displays, and room displays
- Provide ability to manage access to control capabilities for shared resources.
- Allow interface control from student devices as well as from “traditional” instructor station control point(s).
- Allow instructor and students to launch and use applications on displays that are visible to some or all of the class.
- Provide ability to introduce content to entire group using personal device or other sources.
- Provide ability to share content easily with each other, one-on-one, or with small group.

TT Credit 6: Distributed Interactivity

Intent

To enable full, synchronous participation in learning activities from groups in multiple, disparate locations.

1 Point

Criteria for credit

To obtain credit, do both of the following:

1. Enable participants at each connected location to perceive each other and be aware of each other's actions in ways that are easily interpreted.

and

2. Enable participants in multiple locations to work collaboratively in creating, sharing, annotating, and displaying information with a similar performance level to that of individuals working in a co-located physical space.

Potential strategies and approaches

Consider systems that enable any of the following scenarios:

- A presentation to be shared between multiple sites.
- Student questions/commentary to be shared between multiple sites.
- Student small group discussions to be shared between multiple sites.
- Students to share "side-channel" discussion threads between multiple sites.
- Ability for different participants to transparently switch between roles (e.g. presenter, editor) across multiple locations.

TT Credit 7: Session Capture

Intent

To record presentations, group interactions, or conversations with local and remote participants, and make them accessible asynchronously.

1-4 Points

Criteria for credit

To obtain credit(s), do the following in sequence:

1. Capture the presenter screen and presenter audio.

next

2. Additionally capture whiteboard/blackboard notes.

next

2. Additionally capture local audience participation (e.g., Q & A, breakout discussions, group work display) through audio and/or video

next

3. Additionally capture remote audience participation (e.g., Q & A, breakout discussions, group work display) through audio and/or video.

Potential strategies and approaches

- Provide video and/or audio recordings in formats that permit consumption with a variety of devices.
- Integrate session capture controls with room AV controls.
- Capture presentation and synchronized audio in a format that can be redistributed to users outside the classroom, e.g. via a learning management system and/or mobile devices.

TT Credit 8: Innovation in Technology and Tools

Intent

To enable new ways to interact among people and content with creative technological solutions or innovative tools.

1 Point

Criteria for credit

Document the successful implementation of a new solution or emerging technology for providing electrical power, network connectivity, visual displays, AV control, distributed interactivity, or session capture and access that exceeds the scope of **TT Credits 1-7**.