SPENCER MUSEUM of ART

ARCE 650: Illumination Engineering I

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Measuring and Evaluating Lighting Conditions at the Spencer Museum of Art

Objective of the assignment

1. Students will visit the Spencer Museum of Art and practice using technology to measure and record lighting conditions.
2. Students will synthesize and apply their knowledge of lighting criteria and measurement in an evaluative written report.

Specifics of the assignment

1) Before visiting the museum, students will complete the following readings:

1. Illuminating Engineering Society (IES) Fundamentals of Lighting, Chapter 1
2. Illuminating Engineering Society of North America (IESNA) Handbook, Chapter 21: Lighting for Art
3. Illuminating Engineering Society Recommended Practice (RP)-30-96 Museum and Art Gallery Lighting: A Recommended Practice

2) Students will visit the Spencer Museum of Art during a regular class period and use light meters and cameras to measure and record lighting conditions in a specified gallery.

1. Students will have several values to measure, as described below.

3) As a group, students will complete the following tasks:

1. Describe the space (environment, dimensions, layout, intended use of the space, etc.).
2. Determine the lighting criteria for the space in appropriate guidelines such as the IESNA Handbook 10th edition, Chapter 21, "Lighting for art"; the IES RP-30-96 "Museum and Art Gallery Lighting"; or the code ANSI/ASHRAE/IESNA 90.1-2007 (I-P Edition) and the code ANSI/ASHRAE 189.1-2009.
3. Synthesize the field data measured by your group and other groups. Analyze all the horizontal and vertical illuminance values collected on the floor; at 2.5, 4, and 5 feet above the floor; and the luminance values (target, background, target/background ratios) at an observer's eyes to determine whether the existing lighting condition meets the criteria identified above.
4. Submit a written report as a group. This report will cover the date, time and location of the measurement, and all contents specified at steps a, b, and c above. The report may include drawings, diagrams, photographs, etc.

5. Give a 5-minute group presentation in class on your recommendations for any improvements to the existing lighting system (e.g. increase/decrease the illuminance, increase the uniformity of light distribution, alter glaring light sources). You may suggest a complete retrofit if deemed necessary.

Works of art associated with the assignment

The works of art selected for this assignment are suggestions based on previous class visits. It is possible that some objects may not be on view in a given semester. With sufficient advance notice, it is possible that objects that are not on view may be able to be displayed in the Stephen H. Goddard Study Center or Jack & Lavon Brosseau Center for Learning. Contact Kate Meyer (kmm0045@ku.edu) for availability and scheduling of the Study Center and Center for Learning.

You can also search the Spencer Museum of Art website (www.spencerart.ku.edu) for works that are currently on view by clicking on Art>Collection>Search, and then clicking on Collection at the top left to access the advanced search tool. The last text box gives you the option to search only for works on view. For additional help selecting works of art on view for your class visit, contact Celka Straughn, the Andrew W. Mellon Director of Public Practice, Education, and Research, at straughn@ku.edu, or the Academic Coordinator at academic@ku.edu.

Adapting the assignment

While this assignment is designed as a guided class visit in the galleries, it can also be adapted as:

- ✓ a guided class visit
- ✓ independent student work
- ✓ a long-term project
- ✓ a multi-visit assignment

And could take place in:

- □ the Stephen H. Goddard Study Center
- ✓ the Jack & Lavon Brosseau Center for Learning
- ✓ a special exhibition
- ✓ the galleries