



AE 466 – Computer Aided Lighting Design  
Course Syllabus ♦ Spring 2008  
3 Credits

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*Meeting time & Location:* M, W: 10:10 AM – 12:05 PM  
F: 10:10 – 11:00 AM  
308 Sackett

*Required texts:*

- ❖ The IESNA Lighting Handbook, Reference and Application, 9<sup>th</sup> Edition Illuminating Engineering Society of North America
- ❖ Architectural Lighting Design, 2<sup>nd</sup> edition. Gary Steffy.

*References*

- ❖ IESNA Lighting Library
- ❖ Manufacturers' product catalogs & websites
- ❖ Other texts and references as assigned

## Frequently Asked Questions:

*What is the bulletin listing?* AE 466 Computer Aided Lighting Design (3) Design and analysis for outdoor area; floodlighting; and interior applications, including design criteria; economic analysis; modeling algorithms; and visualization. Prerequisites: AE 444, AE 461

*What is this course about?* This course focuses on the advanced design and analysis of lighting systems with a particular emphasis on the application of the lighting design process for advanced interior applications such as multimedia facilities and outdoor applications such as sports lighting. The successful student will initiate the design process, proceed in a self directed manner through all intermediate steps, and produce professional lighting design solutions and accompanying documentation.

Within the context of a series of design project, you will be required to improve your skills in four areas that are important to successful lighting design and illuminating engineering:

1. The ability to create lighting solutions for diverse design problems through the implementation of a design process.
2. The ability to work in a self directed manner, demonstrating initiative, resourcefulness, and taking responsibility for your professional development.
3. Proficiency with lighting software.
4. Communication skills, with emphasis on the graphic and oral presentation of your design concepts and design processes (neatness, creativity, perspective sketching, presentation quality, etc.). This course will build your portfolio of work.

Because much of this course is self-directed, it is imperative that you document your activities. It will be your responsibility to defend and justify the process you followed and the solutions you created. See below under the heading "*How will my work be evaluated?*"

What are the expected learning outcomes?

Upon completion of this course, the successful student will have:

1. a thorough understanding of and ability to establish and follow a design process from programming through construction documentation.
2. further developed his or her set of non-technical skills that are essential to success in the AE professions of lighting design and illuminating engineering. Some of these skills include time management, effective communication, collegiality, and initiative.
3. proficiency with radiative transfer based lighting software.
4. refined his or her visual and oral communication skills and have the ability to present design concepts, design processes, and lighting design solutions with clarity and professionalism.

How is the course graded?

You will be evaluated on a number of skills related to lighting design and illuminating engineering, primarily within the context of lighting design projects. *Table 1* gives the weighting of the assignment categories. Your final letter grade will be determined by reference to *Table 2*.

*Table 1: Weighting of graded assignment categories*

| Category  | Percentage |
|---|------------|
| Small Projects (SP)                                 | 21%        |
| ➤ SP#1: Uniformly lighting a surface                | (7% each)  |
| ➤ SP#2: Luminaire representation in AGI32           |            |
| ➤ SP#3: Schematic design using Photoshop            |            |
| Medium Projects (MP)                                | 30%        |
| ➤ MP#1: Sports Lighting                             | (15% each) |
| ➤ MP#2: T.B.D.                                      |            |
| Large Project (LP)                                  | 37%        |
| ➤ LP#1: Howard Brandston Student Design Competition |            |
| Oral Presentation Assignment                        | 7%         |
| Professionalism (See note)                          | 5%         |

*Table 2: Relationship between point values and letter grades.*

| Minimum % | Letter Grade | Maximum % |
|-----------|--------------|-----------|
| 93        | A            | 100       |
| 90        | A-           | 92        |
| 87        | B+           | 89        |
| 83        | B            | 86        |
| 80        | B-           | 82        |
| 77        | C+           | 79        |
| 73        | C            | 76        |
| 70        | C-           | 72        |
| 67        | D+           | 69        |
| 63        | D            | 66        |
| 60        | D-           | 62        |
| 0         | F            | 59        |

*How will my work be evaluated?*

The only way that your work can be evaluated is on the materials produced. Assignments will require a paper-based deliverable, electronic deliverable, oral presentation, or some combination. You will be informed of the evaluation criteria on a project-by-project basis. The Grading Standards document that is attached to this syllabus provides general guidelines.

Much of the emphasis of this course is on the lighting design process. First thoughts are rarely the best, they need to be rethought and refined in an iterative process. In order to evaluate this process it will be important for you to document the intermediate thoughts that led you to your final lighting solutions. This includes documenting “failed” sketches, “failed” hardware solutions, other “dead-ends” that you explored, and the general evolution of your creative concepts and ideas. These factors will be important parts of the grading criteria. It is your responsibility to make it clear to educated observers such as the instructor, classmates, or guest critics, that you have a good understanding of the material. It is impossible for me or anyone else to distinguish between ignorance and the inability to give evidence of knowledge.

Maintain a work log for each project, which should be well organized and sufficiently detailed to be meaningful. Your work log should in effect be an annotated running timesheet. This is consistent with the expectations at many design firms. By tracking your process you will likely find ways that you can work more effectively and I may be able to help you achieve better time/project management. Be honest in recording your time; the work log will be of no value if it is fictitious.

We will have regular critiques and presentations to discuss work-in-progress. This is an opportunity for you to get feedback from your fellow-classmates, the instructor, and perhaps visiting critics. You are expected to participate in the peer review process; your participation in critiquing other projects will form part of your own grade. This course will also include formal peer-to-peer evaluation. The main goal is to provide constructive feedback in an effort to improve the long-term performance of all.

Finally, it is impossible for me, and unfair to the class as a whole, to consider the amount of money spent on a project or the workload from other classes or outside commitments. These factors will not be considered as part of your evaluation.

*What is meant by “Professionalism”?*

Professionalism in this course is as important as in the workplace, and includes such traits as preparation, productivity, timeliness, willingness to take instruction, participation in discussions, appropriate dress during presentations, and respect for your fellow classmates. Cell phones, email, instant messaging and all other potential distractions will not be tolerated during our regularly scheduled class meetings. Professionalism will be considered as part of the grading.

*What is the attendance policy?*

Attendance at all regularly scheduled class meetings is expected, including lectures, critiques, studio sessions, and project coordination meetings. Regular and punctual attendance is your responsibility and will be considered in the professionalism portion of the grade.

*How much time should I expect to spend on this course?*

The course meets for approximately five hours each week. You should plan to spend at *minimum* an additional eight hours per week outside of class. It may take more than eight hours per week outside of class to excel in this course.

*What is the policy about late work?*

Assignments are due at by the beginning of class unless otherwise noted. Late work will not be accepted.

*What is the policy about working in teams?*

Open discussion and the public exchange of ideas are healthy parts of the learning process and university life. You are encouraged to discuss this course, exchange ideas, and work on assignments with fellow classmates. Keep in mind that there is an implied reciprocity associated with working together, solving problems together, and learning together. It is expected that in some instances your classmates will be a resource for you, while at other times you will be a resource for them. Also keep in mind that working together is a means, not an end. Ultimately, you need to know what you’re doing and you alone are responsible for the work you turn in.

*What constitutes academic dishonesty?*

Talking over your ideas and getting comments on your work from classmates, co-workers and instructors are not examples of plagiarism or cheating. Taking someone else's work and calling it your own is plagiarism — including using another persons' calculations, spreadsheets, computer programs, homework solutions, or ideas. Academic dishonesty includes, but is not limited to, cheating, plagiarism, fabrication of information or citations, facilitation of acts of academic dishonesty by others, unauthorized possession of examinations, submitting work of another person or work previously used without informing the instructor, and tampering with the academic work of other students. Such acts of dishonesty violate the fundamental ethical principles of the University community and compromise the worth of work completed by others. The minimum penalty imposed for academic dishonesty of any type will be a grade of 'F' for the assignment. More serious offenses will result in failure in the course and major offenses may result in suspension or expulsion from the University. You are encouraged to read the University Code of Conduct and Faculty Senate Policy 49-20 and G-9 Procedures.

## Course Outline

| Date                          | Topic  | Assigned             | Due                  |
|-------------------------------|--|----------------------|----------------------|
| Week 1<br>Jan. 14, 16, 18     | M: Class Organization + Lighting Design Process + MP#1:<br>Outdoor Sports Lighting<br>W:<br>F: No Class: IES Student Chapter trip to NYC | M: MP #1<br>W:<br>F: | M:<br>W:<br>F:       |
| Week 2<br>Jan. 21, 23, 25     | M: No Class: Martin Luther King, Jr. Day<br>W:<br>F:   | M:<br>W:<br>F:       | M:<br>W:<br>F:       |
| Week 3<br>Jan. 28, 30, Feb. 1 | M:<br>W: MP#1 Student Presentations<br>F: MP#2: Topic T.B.D.   | M:<br>W: MP#2<br>F:  | M:<br>W: MP#1<br>F:  |
| Week 4<br>Feb. 4, 6, 8        | M:<br>W:<br>F:   | M:<br>W:<br>F:       | M:<br>W:<br>F:       |
| Week 5<br>Feb. 11, 13, 15     | M:<br>W:<br>F:   | M:<br>W:<br>F:       | M:<br>W:<br>F:       |
| Week 6<br>Feb. 18, 20, 22     | M: MP#2: Student Presentations<br>W: SP#1: Uniformly lighting a surface<br>F:  | M: SP#1<br>W:<br>F:  | M: MP#2<br>W:<br>F:  |
| Week 7<br>Feb. 25, 27, 29     | M:<br>W: SP#2: Luminaire Representation in AGI32<br>F:   | M:<br>W: SP#2<br>F:  | M:<br>W: SP#1<br>F:  |
| Week 8<br>Mar. 3, 5, 7        | M:<br>W:<br>F: SP#3: Schematic design using Photoshop  | M:<br>W:<br>F: SP#3  | M:<br>W:<br>F: SP #2 |
| Week 9<br>Mar. 10, 12, 14     | M: No Class: Spring Break<br>W: No Class: Spring Break<br>F: No Class: Spring Break  | M:<br>W:<br>F:       | M:<br>W:<br>F:       |
| Week 10<br>Mar. 17, 19, 21    | M:<br>W:<br>F:   | M:<br>W:<br>F:       | M:<br>W:<br>F:       |
| Week 11<br>Mar. 24, 26, 28    | M: LP #1 Howard Brandston Lighting Design Competition<br>W:<br>F:  | M: LP #1<br>W:<br>F: | M: SP #3<br>W:<br>F: |

|                               |   |                |                         |
|-------------------------------|---|----------------|-------------------------|
| Week 12<br>Mar. 31, Apr. 2, 4 | M:<br>W:<br>F:  | M:<br>W:<br>F: | M:<br>W:<br>F:          |
| Week 13<br>Apr. 7, 9, 11      | M:<br>W:<br>F:  | M:<br>W:<br>F: | M:<br>W:<br>F:          |
| Week 14<br>Apr. 14, 16, 18    | M:<br>W:<br>F:  | M:<br>W:<br>F: | M:<br>W:<br>F:          |
| Week 15<br>Apr. 21, 23, 25    | M:<br>W:<br>F:  | M:<br>W:<br>F: | M:<br>W: LP#1a<br>F:    |
| Week 16<br>Apr. 28, 30, May 2 | M:<br>W: LP #1b Oral Presentations, LP#1c Brandston Competition Deliverables<br>F: Course wrap-up and evaluations | M:<br>W:<br>F: | M:<br>W: LP#1b, c<br>F: |
| Week 17<br>Finals Week        | M:<br>W:<br>F:  | M:<br>W:<br>F: | M:<br>W:<br>F:          |

Note: This general outline is included to give an overview of primary assignment dates and due dates. The dates listed are subject to change. This schedule does not include all interim deliverables.