



ID 325 Introduction to Lighting Design (3 credits)

Spring 2013

Chaminade University

Meeting Time: Tu-Th 8:30-9:50

Location: Eiben 104

Instructor: Marga Jann, AIA, RIBA, DPUC, NCARB **Office:** Eiben 208

Office Hours: Tues/Thurs 8:00-8:20 or by appointment

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Course Catalog Description:

ID 325 Introduction to Lighting Design (3)

This course is designed to provide students with an introduction to the specialized field of lighting design. History of lighting advancements and industry terminology will be researched and various products and new technology discussed. Qualitative and quantitative measures of lighting will be explored as well as effective use of lighting in expressing problem-solving design concepts. Offered annually.

Prerequisites: Admission to the major or consent of instructor.

Resources

- Winchip, S. (2011). *Fundamentals of Lighting*. 2nd ed. New York: Fairchild. **Required**
- Gordon, G. & Nuckolls, J. (2003). *Interior Lighting for Designers*. 4th ed. **Recommended**
- Karlen, M. & Benya, J. (2004). *Lighting Design Basics*. Wiley. **Recommended**
- 3-ring binder (1+” thick), index tabs
- Template that includes lighting symbols such as Staedtler #977 or Rapidesign R-22.
- Sketching and drafting materials

Learning Outcomes/Competencies

At the end of this course, the student will:

1. Select appropriate lighting types for residential and non-residential spaces based upon the function of the space, psychological and perceptual aspects of lighting, and energy efficiency
2. Compare the benefits of daylighting with electric lighting for the environment and human health.
3. Compare and contrast the advantages of most common types of incandescent, fluorescent, LED, and specialized lamps.
4. Present lighting types and selections in the form of lighting and electrical plans and reflected ceiling plans with appropriate architectural symbols, in particular for an executive office “live project” design based on SketchUp models created by/with ID321 (Space Planning & Programming) students.

SketchUp will be used to evaluate daylighting and solar heat gain issues, to calculate area take-offs for energy analysis, and to create lifelike, 3D models and animations for presentation of design recommendations to client (*Kaka’ako Fellowship* <http://www.kcfhawaii.org/> at 705 S King

Street, Suite 106, Honolulu 96813). Lighting students will import the SketchUp models into **AGI** or **Echotech** (or similar powerful lighting analysis tool) to generate more detailed information about the levels and distribution of light in the spaces modeled.

[A typical Lighting Analysis goes like this:

1. **Build** SketchUp model
2. **Input** - Shadow Settings, geographical location, solar orientation
3. **Evaluate** - Building orientation, fenestration pattern, window/monitor size and placement, shading device form and placement
4. **Make recommendations to** optimize daylight, minimize glare, control solar heat gain based on the pattern of daylight infiltration and overall lighting design.
5. **Import** into AGI for a more detailed analysis.]
5. Discuss the implications of sustainable design, energy conservation and the new state energy code on lighting systems.
6. Present all finished lighting projects, “live”/residential and commercial, in graphic and oral form.

Evaluation of Student Performance

No late work will be accepted. If students are unable to attend class, send assignments with someone else. It is the student’s responsibility to obtain notes and assignments from another student in the event that a class is missed.

Any grades of Incomplete will be granted at the instructor’s discretion, and after consultation with the instructor.

Assignments

	Points
• <u>Four exams (non-cumulative, 30 pts each)</u>	120
• <u>In-class quizzes, assignments, guest speaker notes</u>	50
• <u>“Live project” lighting design scheme</u>	20
• <u>Prelim. lighting plans (res & comm.) (10 pts each)</u>	20
• <u>Field trip worksheets, thank-you notes</u>	10
• <u>Residential lighting plans</u>	30
• <u>Commercial reflected ceiling plans</u>	30
• <u>Lighting journal (6 entries @ 5 points each)</u>	30
• <u>Lighting Design Notebook*</u>	<u>30</u>
<u>Total:</u>	320 points

***Lighting Design Notebook: This will be a reference for providing lighting for all of your future studio projects.**

Use Title Page and Table of Contents. Use a consistent computer font. Design the notebook as a designer plans a book. Divide into sections with vinyl tabs, using title pages as explained in class, plus a section for Lighting Basics (printed from Sylvania website). Add all course notes, guest speaker notes, field trip notes and business cards, product literature, and so forth to the correct section (see course schedule for topics).

NOTE: Begin your Course notebook/binder now with vinyl tabs, adding materials each week.

Final Grades:

A total of 320 points is possible for the course.

94-100% = A
 90-93% = A-
 87-89% = B+
 84-86% = B
 80-83% = B-
 77-79% = C+

74-76% = C
 70-73% = C-
 67-69% = D+
 64-66% = D
 60-63% = D-
 Below 60% = F

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Tentative Course Schedule

This schedule may change slightly depending on guest speakers, field trips and project parameters.

Week #	Date	Topic	Reading	Due
1)	Jan 15, 17	<u>Intro to quality lighting, and to the course & syllabus, history of Lighting.</u> (CIDA Std. 8)	Win: Preface, Ch 1, +	Thurs: quiz: Preface, Ch 1, Bring binder, tabs. Studio project
2)	Jan 22, 24	<u>Color, Directional effects.</u> (CIDA Std. 10)	Win: Ch. 2, Glossary p.343-350	LJ #1 Tu. Studio project
3)	Jan 29, 31	<u>Natural and Artificial Light Sources.</u> (CIDA Std. 12, 14)	Win: Ch. 3	LJ#2 Tu. Studio project, guest speaker
4)	Feb 5,7	<u>Natural and Artificial Light Sources.</u> (CIDA Std. 12, 14)	Win: Ch. 3	Mid-term #1 (Ch 1-3). Begin "live project" design schematics, guest speaker on Th
5)	Feb 12, 14	<u>Energy, the Environment, and Sustainable Design, new HI energy code</u> (CIDA Std. 2, 14)	Win: Ch 4	LJ#3 Tu, Live project schematics due Th
6)	Feb 19, 21	<u>Illumination, Human Health and Behavior</u> (CIDA Std. 3)	Win: Ch. 5	LJ#4 Tu. Begin resid. project
7)	Feb 26, Feb 28	<u>Lighting Systems: Luminaires</u> (CIDA Std.11)	Win. Ch. 6	LJ#5, Tu. CAD resid. plan due. Thurs-Field trip
8)	Mar 5,7	<u>Lighting Systems: Controls</u> (CIDA Std. 11, 2, 14)	Win: Ch. 7	Studio project, field trip worksheet due Tues.
9)	Mar 12, 14	<u>Quantity of Light</u> (CIDA Std. 12, 14)	Win. Ch. 8	Mid-term #2 (Ch 4-7) Tu. Guest speaker/critic Thurs
10)	Mar 19, 21	<u>Lighting Design Process: Project Planning through Design Development.</u> (CIDA Std.4, 6)	Win. Ch. 9	LJ#6, Tu. Present resid. Project Th.
Spring break: March 25-29				

11) Apr 2, 4	<u>Lighting Design Process: Contract Documents through Post occupancy Evaluation.</u> (CIDA Std. 4, 6)	Win. Ch. 10	<i>Begin comm. project</i>
12) Apr 9, 11	<u>Residential Applications</u> (CIDA Std. 3, 4,5,6, 12)	Win. Ch. 11	<u>Mid-term #3 (Ch. 8-10), work on comm. project</u>
13) Apr 16, 18	<u>Residential Applications</u> (CIDA Std. 3, 4,5,6, 12)	Win. Ch. 11	<i>comm. project studio work</i>
14) Apr 23, 25	<u>Commercial Applications</u> (CIDA Std. 3, 4, 5, 6, 12, 14)	Win. Ch. 12	<i>CDs for Comm. Project</i>
15) Apr 30, May 2	<u>Commercial Applications.</u> (CIDA Std. 3, 4, 5, 6, 12, 14)	Win. Ch. 12	<u>Present Comm. Project</u>
<u>16) Finals Week</u> May 6-9	<u>Final exam (Date/time to be confirmed)</u>		<u>Mid-term #4 (Ch. 11-12)</u>

Course policies:

Attendance: Regular attendance and class participation are expected. If a student's grade for this class is borderline, excessive absences (3 or more) will be taken into consideration. It is the responsibility of the student to obtain notes from missed classes. You are responsible for all materials and topics discussed whether you attend class or not.

Cell phones: Use of cell phones, text messaging, and laptops for email is disruptive for other students in the class. Please wait until the class is over.

Use sustainable practices as a student:

1. Do not use vinyl cover sheets or plastic/paper folders when turning in assignments.
2. Do not use a separate title page. On the first page in the upper right, write your full name, the title of the assignment, and the date.
3. Draft and edit on the computer. Print only when the assignment is ready.
4. You may print double sided.

n.b. Course content and scheduling are subject to change at the instructor's discretion in the interest of sound pedagogy.