Course Syllabus
LIGHTING DESIGN

Class Meetings: Tuesday 7-10PM, Room 310
Session/Year: Fall, 2015
Instructor Name: Mark Lewison
Email Address: mclewison@yahoo.com
Phone: 323-578-8285

General Information and Course Description:

Description:

This course covers basic lighting topics, including light and texture, color, and quality, lighting sources, luminaires, lighting controls and lighting design documents for Residential and Commercial architectural spaces. Instruction includes lectures, research, and student projects.

Expectations:

Students must demonstrate throughout the quarter an understanding of lighting design principles, methods, techniques and knowledge of luminaires and lamps. Course assignments will require students to develop concept statements, prepare quick concept sketches, and Lighting Design documents in AutoCad and in Excel.

Course Goals:

Familiarize students with Lighting design concepts, physical factors, equipment, lamps, concept presentation, applications, design techniques, architectural documents, and key players in the lighting industry today.

Course Objectives:

Students will:
- Familiarize students with lighting industry terminology, equipment, lamps and key players in the industry.
- Review theories of physical and psychological factors of light and its relationship to human behavior and the interior environment.
- Discover how light intensity, relative contrast, reflectance, color, CRI, and direction impact materials, texture, function and mood of a space.
- Learn the primary types of lamps and fixtures used interior applications and understand their applications.
- Cover lighting application, techniques, and codes for residential, retail, and office environments.
- Develop lighting layouts, lighting control schedules, and specifying lighting fixtures.
Course Objectives and expected learning outcomes:

Upon successful completion of this course, the student will / will be able to:

- Determine the appropriate use of the various lighting design techniques used in a successfully lit interior space using manufacturer’s photometric data.
- Describe in technical, qualitative and quantitative terms the various types of lighting, fixtures, and lamps.
- Produce properly keyed and coordinated reflected ceiling plans, schedules, legends and fixture specifications.
- Explain energy efficiency conservation issues as they pertain to lighting.
- Calculate proper lighting levels for various interior applications.
- Understand basic lighting design concepts for architecture and how to apply them to a space.
- Have knowledge of lamps, controls, and lighting fixtures.
- Have knowledge of lighting techniques for effectively lighting architectural spaces.

Required Materials:

- Basic drawing materials: pencils, pens, highlighters, notepaper, scale rule, and grid paper.
- Camera (ok to use good quality phone) with the ability to turn the flash off.
- Materials for LIGHTING FIXTURE project (see assignments).
- Auto CAD, Excel, and the ability to PDF on home or laptop computer.

Optional Materials:

- Laptop in class

Required Texts

“The Architecture of Light” by Sage Russell

Recommended Texts

“Interior Lighting for Designers” by Gary Gordon

Course Schedule

See Calendar

Assignments & Grading

Assignments will be handed out weekly (can be found on UCLA Extension's CANVAS). Homework assignments due dates are indicated on each assignment description sheet. Assignments include selected readings from the required textbook and/or referenced Internet sites that either prepare students for upcoming class or supplement a previous class.

Assignment Descriptions

See individual assignments

Grading

The standards for evaluating student performance are based upon the student’s ability to demonstrate an understanding and competency of the course goals and lighting fundamentals. Evaluation is based
upon a student’s completion of assignments on schedule; correctly following directions; a defined and clear understanding of the assignments; critical analysis and research of the assignments, including refinement and development of appropriate solutions with proposed alternatives; preparedness for class; and the quality of work.

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<th>Grade Percentage</th>
<th>Letter Grade</th>
<th>Pass/ Fail</th>
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<tbody>
<tr>
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<td>&gt;59%</td>
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Course Policies

Attendance is mandatory. More than two absences can result in a failure of the course. All written data, as well as attendance, research results, drawings and presentations will be considered in the grading process.

Academic Honesty Policy

Academic dishonesty covers behavior in cheating, plagiarism, and fabrication of information. These behaviors are not tolerated. Students are encouraged to familiarize themselves with the UCLA Extension Student Conduct Code and the official statements regarding cheating and plagiarism at: https://www.uclaextension.edu/Pages/str/StudentConduct.aspx

Services for Students with Disabilities

In accordance with Section 504 of the Rehabilitation Act of 1973 and the Americans with Disabilities Act of 1990, UCLA Extension provides appropriate accommodations and support services to qualified applicants and students with disabilities. These include, but are not limited to, auxiliary aids/services, such as note takers, audio taping of courses, sign language interpreters, and assistive-listening devices for hearing-impaired individuals, extended time for and proctoring of exams, and registration assistance.

Accommodations and types of support services vary and are specifically designed to meet the disability related needs of each student based on current, verifiable medical documentation. Arrangements for auxiliary aids/services are available only through UCLA Extension Disabled Student Services at (310) 825-4581 (voice/TTY) or by email at access@uclaextension.edu.

Please request such arrangements with at least five working days’ advance notice. All assistance is handled in confidence. Accommodations must be pre-approved. Requests for retroactive accommodation will not be accepted.

Feedback on Assignments

Feedback will be posted in CANVAS. If the student requires more feedback he or she may request an Individual meeting to discuss assignments.

Due Dates & Late Work

Due Dates are indicated on Assignments. Any late work will be marked down accordingly. Students. No student work will be accepted nor considered for Final Grade after the last scheduled class of the course. Students MUST complete all assignments given or will receive an INCOMPLETE.
Weekly Course Schedule

Process for Evaluation:

<table>
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<th>Task Description</th>
<th>Points</th>
<th>Percentage of Final Grade</th>
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<tbody>
<tr>
<td>Class participation/ In Class Assignment Pin ups and Critiques</td>
<td>300</td>
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<tr>
<td>Wiring/ Switching Plan Assignments-In Class presentations</td>
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<td>Assignment #1-Creative Office Space/ Due week 3</td>
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<td>Assignment #2-Hospitality-Hotel Suite/ Due week 5</td>
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<td>Assignment #3-Large Residential/ Due Week 7</td>
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<td>Assignment #4-Boutique Hotel Lobby/ Lobby Bar / Due week 10</td>
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<tr>
<td>Final Project: Lighting and Human Factors Photography Study/ Design Queues</td>
<td>200</td>
<td>20%</td>
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<td>Due week 12</td>
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Course Outline

Week 1:

Lecture:
- Introduction to class: syllabus, Assignments, Pin Up requirements, Textbook
- Light sources/ Lamping/ Energy Conservation/ New Lighting Technologies

In Class:
- Wiring/ Switching/ Electrical Plan Symbols-Standards/ Requirements
- Introduce First Wiring/ Switching Assignment #1-Creative Office Space/ Electrical Plan

Homework:
Work on Wiring/ Switching Assignment 1-Light/Wire/Switch Creative Office Space-Pin up week In Class week 2 / Presentation in Class week 3

Read:
Chapters 1-4, 26
Appendix A
Appendix C

Week 2:

Lecture:
- Lighting systems/ Applications of Lighting Types and their uses—Specifying

In Class:
- Pin up review of Assignment 1(Prints or Trace)-Due in class week 3
- Introduce Wiring/ Switching Assignment 2-Hospitality/ Hotel Suite
- Residential Lighting/ Lighting Layers-Ambient, Task, accent and effect lighting
- Introduce Final Project/ Photographic study and Human Factors analysis of lighted environments-Color of Light and Lighting types and levels-behavior setting
- Review Lighting Plan Symbols
Homework:
Finish Wiring/ Switching Assignment 1-Light/ Wire/ Switch Creative Office Space-Presentation in Class
week 3

Read:
Chapters 18-21

Week 3:

Lecture:
- Research on Fixtures (Energy efficient lamping-LED)
- Placements, Glare/ surface Glare/ ex. Sconce vs. Overhead in Bathrooms-placement and standards
- Lighting Levels calculations/ Levels
- Beam Spread and area

In Class:
- In Class Presentation of Assignment #1-Creative Office Space/ Complete Lighting Plan
- Pin Up review of Wiring/ Switching Assignment #2 (Prints or Trace)-Hospitality/ Hotel Suite lighting Project
- Residential Lighting/ Ambient, Task, accent and effect lighting revisited
- Energy conservation in Residential settings/ systems. Title 24
- Review Lighting Plan Symbols with additions

Homework:
Begin Work on Hotel Suite-Assignment #2
Research on Lighting Fixture Types and Styles for Hospitality Project #2

Read:
Chapters 9-12

Week 4:

Lecture:
- Lighting Plans/ Lumens/ Calculating Lighting Levels/ Light meters/ Computer programs for specifying lighting levels-introduction to key features of Title 24

1. CURRENT 2014-2015 CODES: CALIFORNIA TITLE 24:

   HTTP://WWW.BSC.CA.GOV/CODES.ASPX

   - “Cones of Light” in down lighting and recessed applications/ Color of light
   - Color of light/ lamping and source color rendition/ fabric and color specification/ spectrum
   - Introduction to title 24-lighting/ energy conservation in California

In Class:
- Introduce Assignment #3-Large Residential Lighting Project Lighting Plan-Due Week 7
- Lighting Specifications, Materials, schedules Review
- Sustainable lighting systems and LEED requirements in Residential and Commercial Settings
- Pin Up of Review Assignment #2-Hospitality/ Hotel Suite/ Electrical Plan (prints or trace)

Homework:
Finish Assignment #2-Hospitality/ Hotel Suite Plan-Presentations week 5
Individual Field Trip to Lighting Showroom-see descriptive handout

Read:
Chapters 13-16

Week 5:

Lecture:
- Color and surfaces/ reflectance/ Planning for Glare

In Class:
- Presentations and Critique of Assignment 2-Hospitality-Hotel Suite/ Lighting Plan
- Introduce Assignment #3-Large Residential Lighting Plan-Due Week 7

Homework:
Begin sketches/ Specifications for Assignment 3/ Sketch format-process sketch Elevations for Residential lighting project
Work on Large Residential Lighting Design Project- Due week 7

Read:
Chapters 5-8, 17

Week 6:

Lecture:
- Introduction to acoustical controls and lighting
- Introduction to thermal Design: control/ heat transmission of lighting

In Class:
- Introduce Final Project Assignment-Photo essay and analysis of lighted environments and human factor response/ Behavior Setting-Due Week 12
- Pin Up of Review Assignment #3-Large scale residential/ Electrical Plan (prints or trace)

Homework:
Finish Project #3-Large Residential Lighting Design-Due Week 7

Read:
Chapters 22, 23

Week 7:

Lecture:
Exterior Lighting Systems/ Layers/ Fixturing/ Efficiency

In Class:
- Library/ web research on new lighting technologies for hospitality-restaurant installations
- Presentations and Critique of Assignment 3-large Residential/ Lighting Plan
- Introduce Assignment #4-Boutique Hotel Lobby Lighting Plan-Due Week 10
Homework:
Work on Assignment #4-Due week 10
Read:
Chapters 24, 25, 27, 28

Week 8:

Lecture:
- Review Of Lighting Plan symbols/ wiring plans/ switching plans
- Review/ In Class Presentation of Individual Field Trip/ Home Depot Field Trip/ What was learned/ observed

In Class:
- Pin Up of Review Assignment #4-Boutique Hotel Lobby/ Electrical Plan (prints or trace)

Homework:
Work on Final projects

Read:
Chapter 29,30

Week 9:

Lecture:
- Lighting design and fixturing for effects-Hospitality/ Shading/ Materials/ lamping
- Acoustical control-Controlling sound emissions between partitions and floors in relation to ceiling penetration from installation of lighting and electrical (Recessed Equipment)
- Thermal control-Heat transmission of lighting

In Class:
- Pin Up of Review Assignment #4-Boutique Hotel Lobby/ Electrical Plan (prints or trace)

Homework:
Complete work on Assignment #4-Due in class presentation Week 10

Read:
Part IV-Final Thoughts Pages 242-244

Week 10:

Lecture:
- Lighting details/ Review: Planning Symbols/ Cones of Light/ Switching/
- 3 types of lighting-uses/ Exterior Lighting-uses and effects

In Class:
Presentations and Critique of Assignment #4-Boutique Hotel Lobby-Bar/ Lighting Plan
Review Final Project Assignment-Photo Essay and Analysis of lighted environments-Due week 12

Homework:
Work on Final Project/ Photos/ Analysis/ Presentation specifics/ Prezi

Read:
Chapter Appendix D, Review Chapters 21-23

Week 11:

Lecture:
- Lighting and Human Factors/ Behavior Control
- The lit Retail environment
- The Lit Medical environment
- The Lit Office environment/ trends

In Class:
- Finish Drawings/ Elevations/ 3D of final projects
- Presentation requirements and outline requirements

Homework:
Complete Final Photo Essay/ Environmental Analysis-Due in class media presentation week 12

Week 12:

Lecture/ In Class:
Presentations and Critique of Final Project -Lighting and Human Factors Analysis

Homework:
None