

Common Course Outline

INTD 246

Lighting Design

3 Credits

The Community College of Baltimore County

Description

INTD 246 – **Lighting Design** introduces the fundamentals of lighting for interior environments. Emphasis is placed on exploring light as an element of design, the effect lighting has on the function and aesthetics of interior space, utilizing layers of lighting, luminaires, lighting applications, and planning.

3 Credits

Prerequisite: INTD 111 or consent of the program coordinator.

Overall Course Objectives

Upon completion of this course students will be able to:

1. identify the objectives of a lighting designer;
2. distinguish the differences between natural and artificial light sources;
3. examine basic lighting theories;
4. develop a vocabulary of lighting terminologies;
5. identify psychological and physiological effects of lighting;
6. demonstrate a knowledge of the layers of lighting;
7. contrast lighting effects;
8. identify technological advances in the lighting industry;
9. apply lighting resources for design projects;
10. create lighting plans;
11. write lighting specifications;
12. interpret and apply electrical codes and standards;
13. interpret and apply accessibility principles; and
14. employ energy efficient and sustainable practices.

Major Topics

I. Light

- A. The eye and vision
- B. Factors affecting visibility
- C. Properties of light in lighting
- D. Human factors
 1. Environmental behavior

- a. Geographical
- b. Cultural
- c. Age-related
- 2. Psychological
- 3. Physiological

II. Illumination

- A. Natural light sources
- B. Artificial light sources
 - 1. Lamps (light bulbs)
 - 2. Filament light sources
 - 3. Solid state lighting
 - 4. Ballasted light sources

III. Lighting metric terminology

- A. Photometrics
 - 1. Measurements of light
 - 2. Illuminance values and calculations
 - 3. Surface reflectance
- B. Color temperature
- C. Color rendering index

IV. Luminaires

- A. Architectural built-in
- B. Hardwired
- C. Portable
- D. Lamps (light bulb)
- E. Luminaire design
- F. Technological advances

V. Lighting design

- A. Basic electricity
 - 1. Circuitry
 - 2. Electrical output
 - a. Voltage
 - b. Transformers
 - 3. Codes and standards
 - 4. Outlet options
- B. Controls
 - 1. Switching
 - 2. Dimming
 - 3. Central control systems
 - 4. Wireless controls
- C. Application
 - 1. Residential
 - 2. Commercial
 - 3. Architectural surfaces
 - 4. Integrating light and architecture
- D. Health, safety and welfare
 - 1. Accessibility codes Americans with Disabilities Act
 - 2. Codes and standards
 - 3. Visual clarity
 - 4. Energy efficiency

5. Sustainability
- E. Layers of lighting
 1. Ambient
 2. Task
 3. Accent
 - a. Decorative
 - b. Art and features
 - c. Architecture
 4. Lighting effects
- F. Technological and security systems
- VI. Lighting designer
 - A. Role
 - B. Career opportunities
 - C. Specialties
- VII. Lighting schedules
- VIII. Lighting plans
 - A. Reflected ceiling plan (RCP)
 1. Lighting symbols
 2. Articulating the ceiling plan
 3. Mechanical systems (Heating, ventilation, and air conditioning on RCP)
 4. Safety systems on RCP
 - B. Lighting and electrical

Course Requirements

Grading/exams: Grading procedures will be determined by the individual faculty member but will include the following:

- a minimum of one exam
- a minimum of 3 in-class exercises
- a minimum of 3 lighting design projects
- at least one project to include a lighting plan and a lighting schedule
- a lighting identification project with a minimum of 20 topics

Students are required to use appropriate academic resources.

Other Course Information

This course is an elective course for the Interior Design degree and certificate. Class format includes illustrated lectures, technical demonstrations, homework assignments, presentations, critiques, and field trips.