

INTD 246
Lighting Design
3 Credits

Community College of Baltimore County
Common Course Outline

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, Lighting controls, and planning.

Pre-requisites: INTD 240, CADD 101

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. illustrate 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. apply codes and IES recommended levels of light per application;
13. interpret and apply electrical codes and standards;
14. interpret and apply accessibility principles; and
15. 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
 - i. Environmental behavior
 1. Geographical
 2. Cultural
 3. Age-related
 - ii. Psychological
 - iii. Physiological

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For more information, see your professor's syllabus.

- II. Illumination
 - a. Natural light sources
 - b. Artificial light sources
 - i. Lamps (light bulbs)
 - ii. Filament light sources
 - iii. Solid state lighting
 - iv. Light emitting diodes (LED)
- III. Lighting metric terminology
 - a. Photometrics
 - i. Measurements of light
 - ii. Illuminance values and calculations
 - iii. Surface reflectance
 - b. Color temperature
 - c. Color rendering index
 - d. TM-30
- 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
 - i. Circuitry
 - ii. Electrical output
 - 1. Voltage
 - 2. Transformers
 - iii. Codes and standards
 - b. Controls
 - i. Switching
 - ii. Dimming
 - iii. Central control systems
 - iv. Wireless controls
 - c. Application
 - i. Residential
 - ii. Commercial
 - iii. Architectural surfaces
 - iv. Integrating light and architecture
 - d. Health, safety and welfare
 - i. Accessibility codes Americans with Disabilities Act
 - ii. Codes and standards
 - iii. Visual clarity
 - iv. Energy efficiency
 - v. Sustainability
 - e. Layers of lighting
 - i. Ambient
 - ii. Task

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- iii. Accent
 - 1. Art and features
 - 2. Architecture
 - iv. Lighting effects
 - v. Decorative
 - 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)
 - i. Lighting symbols
 - ii. Articulating the ceiling plan
 - iii. Mechanical systems (Heating, ventilation, and air conditioning on RCP)
 - iv. Safety systems on RCP
 - b. Lighting and electrical
- IX. Lighting Controls
 - a. Control Zone Layouts
 - b. Dimming Schedule
 - c. Scene preset matrix

Course Requirements

Grading will be determined by the individual faculty member, but shall include the following, at minimum:

- an exam or quiz
- a research paper
- three lighting design projects
- one project to include a lighting plan and a lighting schedule
- a lighting identification project with a minimum of 20 topics

Other Course Information

This course is an elective course for the Interior Design degree and certificate.

Individual faculty members may include additional course objectives, major topics, and other course requirements to the minimum expectations stated in the Common Course Outline.

Date Revised: 2/3/2026

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