IES Course

Fundamentals of Lighting

FOL-IM-09

Instructor's Manual

Illuminating ENGINEERING SOCIETY

IES Educational Program

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Fundamentals of Lighting

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For the Instructor-Presenter:

- Student Text including Student Handout Notes Pages
- Quizzes & Answers
- IES Administrative / Professional Development Program Material
- PDF Files of Archival Slide Sets, and Archival Slide Sets with Instructor Notes

Illuminating ENGINEERING SOCIETY

IES Educational Program

Approved by the IES Board of Directors, May 2009.

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IES Standards and Guides are developed through committee consensus and produced by the IES Office in New York. Careful attention is given to style and accuracy. If any errors are noted in this document, please forward them to the Educational Program Manager, at the above address for verification and correction. The IES welcomes and urges feedback and comments.

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Illuminating
ENGINEERING SOCIETY

IES Fundamentals of Lighting

Module 1:
Basic Lighting Concepts, Vision, and Color

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Introduction to *Fundamentals of Lighting*

Welcome to the IES *Fundamentals of Lighting*. This seven-module investigation of light and lighting is intended to provide basic knowledge for any interested individual. As such, it will provide enough depth for basic understanding while attempting to cover the most significant areas within the field of study. In 2009, IES will begin to offer additional stand-alone, in-depth seminars on some of the topics that are introduced in *Fundamentals of Lighting*. For example, Codes and Standards, Merchandise Lighting, Lighting Economics, and Visual Environment for Senior Living will be covered by these topical seminars.

Fundamentals of Lighting has been organized and designed to meet specific learning objectives:

Module	Title	Upon completion, participants will:
1	Basic Lighting Concepts, Vision and Color	• Appreciate the history of light and lighting, with emphasis on technology, energy efficiency, and its interaction with architecture • Understand and be able to use basic lighting terminology • Comprehend the relationships among light, vision, and color
2	Electric Light Sources and Ballasts	• Understand the basic operation and performance characteristics of electric light sources • Understand how ballasted light sources operate as part of a system • Identify commonly used electric light sources and generally understand where and how they are applied
3	Luminaires and Lighting Controls	• Identify and recognize the various types of luminaires offered today, by mounting type, by light source, and by application • Understand the various types of lighting controls available today, how they work, and why they are important
4	Photometry and Lighting Calculations	• Understand how to read the photometric reports in luminaire manufacturer catalogs • Use the photometric information to calculate average illuminance (the lumen method) and illuminance at a point
5	Lighting for Interiors	• Appreciate the complexities involved in designing lighting for residential and commercial spaces • Understand the objective and subjective aspects of lighting for interior spaces
6	Lighting for Exteriors	• Understand the multiple issues involved in designing lighting for exteriors, including glare, light trespass, safety and security
7	Important Issues in Lighting	• Gain a general understanding of key lighting issues, including sustainability, daylighting, lighting economics, codes and standards, and light and health • Be prepared for further study in advanced topics in lighting

Each module is accompanied by a Power Point slide presentation to provide instructors with discussion points and to enhance educational delivery.