



Laser Institute of America

Laser Applications and Safety

Laser Safety Officer with Hazard Analysis Daily Agenda

Day 1

- I. Welcome & Introductions**
- II. Introduction to ANSI Z136.1 *Safe Use of Lasers* standard**
 - a. History and development of ANSI standard
 - b. Scope and LSO responsibilities
- III. Basic Concepts of Lasers**
 - a. Properties of light
 - b. Geometrical Optics
 - c. How does a laser work
 - d. Characteristics of laser light
 - e. Characterizing the laser output
 - f. Categories of laser systems
 - g. Laser applications
- IV. Laser Bioeffects**
 - a. Laser effects on the eye and skin

Day 2

- I. Laser Bioeffects (*con't*)**
 - a. Laser effects on the eye and skin
- II. Laser Safety Standards for Manufacturers**
 - a. Comparison of ANSI and CDRH standards
 - b. CDRH Federal Laser Product Performance Standard (FLPPS)
 - c. New laser safety hazard classification scheme
 - d. IEC standards and CDRH Laser Notice No. 50
- III. Laser Hazard Analysis**
 - a. Review of radiometric terms & units
 - b. MPE: Maximum Permissible Exposure
 - c. Determination of the MPE
 - d. Viewing conditions for determining the MPE
 - e. Procedure for determining the ocular MPE
 - f. Examples

Day 3

- I. Laser Hazard Analysis (*con't*)**
 - a. Nominal hazard zone
 - b. AEL, and laser hazard classification
 - c. Optical density
 - d. More Calculations

Day 4

- I. Laser Regulations and Consensus Standards for Laser Users**
 - a. OSHA, FDA
 - b. FAA
 - c. Other ANSI standards
 - d. IEC

- II. Non-Beam Hazards**
 - a. Non-beam hazards & ANSI Z136.1
 - b. Chemical hazards
 - c. Physical hazards
 - d. Biological hazards
 - e. Other non-beam hazards

- III. Laser Accident History**
 - a. Who gets injured the most
 - b. statistics

- IV. Laser Safety Program Administration**
 - a. The Laser Safety Officer (LSO)
 - b. Structure of a laser safety program
 - c. Laser safety program administration

Day 5 (half-day)

- I. Laser Safety Control Measures**
 - a. Engineering control measures
 - b. Administrative and procedural control measures
 - c. Eye protection
 - d. Barriers & curtains

- II. Course Review**
 - a. Post test
 - b. Q & A