



# ***Principles of Lasers & Laser Safety Officer Course (L-250)***

## **AGENDA**

### **Day One- Principles of Lasers:**

**Laser Concepts**

**Types of Lasers**

**Laser Output Characteristics**

**Laser Optics and Components**

**Q&A / Evaluation**

### **Day Two- Laser Safety Officer:**

**Laser Concepts & Components**

Fundamentals of Light

Elements of a Laser

**Beam Terms & Characteristics**

Radiometric Units

Temporal Characteristics

Spatial characteristics

**Skin & Eye Biological Effects**

Mechanisms of Interaction

Effects on the Skin and Eye

Point and Extended Source Effects

## **MPE Calculation Session 1 – continuous wave lasers**

### **Day Three- Laser Safety Officer:**

#### **Review Session**

#### **Maximum Permissible Exposures (MPE)**

Correction Factors

Sample Computations of Small Source MPE's using Tables 5d

Accessible Emission Limits (AEL's)

#### **Laser Classifications**

ANSI / IEC system

CDRH system

#### **Laser Safety Standards**

Federal Laser Product Performance Standard

OSHA (DOL) & State Requirements

ANSI-Z-136.1-2014 Standard

#### **MPE Calculation Session 2 – pulsed lasers**

#### **Laser Hazard Analysis**

Nominal Hazard Zones

Optical Density (OD)

#### **NHZ Calculation Session**

## **Day Four- Laser Safety Officer:**

### **Review Session**

#### **Laser Accident Analysis**

Overview of Laser Accidents

Case Studies of Accidents

#### **Control Measures**

Engineering

Administrative & Procedural

Protective Equipment

#### **OD Calculation Session**

## **Day Five- Laser Safety Officer:**

#### **Non-Beam Hazards**

Physical Agents

Chemical Agents

Biological Agents

#### **Safety Programs and Training**

#### **Medical Surveillance**

Incidental & Laser Personnel

Accidental Exposure

#### **Q&A / Evaluation**