



## **Laser Safety Program**

### **1. PURPOSE**

- a. This program is designed to ensure the safe use of lasers and laser systems at the University of Dayton. Laser safety is essential when the laser beams produced have the potential to cause biological damage to the eye and skin. Lasers and laser systems are classified based upon their potential hazard to the eye under normal working conditions. Although all classes of lasers possess some level of risk, only lasers classified as IIIb and IV will be managed under this program. Appropriate training and control measures are needed to ensure the well-being of workers who may use or be exposed to laser radiation and non-laser hazards associated with these systems.

### **2. APPLICABILITY**

- a. This policy applies to all faculties, staff, students and employees of the university and research institute that use lasers or may be exposed to laser related hazards.

### **3. REFERENCES**

- a. 29 CFR 1926.54: Ionizing Radiation
- b. ANSI Z87.1: Occupational and Educational Personal Eye & Face Protection Devices
- c. ANSI Z136.1: Safe Use of Lasers
- d. ANSI Z136.5: Safe Use of Lasers in Educational Institutions
- e. ANSI Z136.6: Safe Use of Lasers Outdoors

### **4. DEFINITIONS**

- a. **Control Measure** – Those materials, policies, and practices employed with the purpose of reducing the possibility of human exposures to hazardous laser radiation and non-beam laser hazards
- b. **Laser** – A device that produces radiant energy predominately by stimulated emission
- c. **Laser Worker** – Anyone who works with or may potentially be exposed to the hazards associated with lasers during the course of their assigned duties

### **5. ROLES and RESPONSIBILITIES**

- a. Environmental Health and Safety/ Risk Management Department (EHS/RM)
  - (1) Approve Laser Safety Program and program changes
  - (2) Assist in maintaining a comprehensive Laser Safety Program
  - (3) Services include registration of lasers and laser workers, initial and periodic laser safety inspections, training, coordination of baseline eye examinations, and provide required laser warning signs
- b. Laser Safety Officer (LSO)
  - (1) Individual responsible for monitoring laser use and safety
  - (2) Administration of the Laser Safety Program at the University of Dayton and management of all related documentation
  - (3) Classify or verify classification of lasers or laser systems used under the LSO's jurisdiction
  - (4) Hazard evaluation of laser work areas

- (5) Determine the type and level of control measures for lasers and laser systems and develop Safety Standard Operating Procedures (SOPs) for laser and non laser hazards associated with Class IIIb and IV laser systems.
  - (6) Oversee laser safety training
  - (7) Perform annual laser inventory and register new lasers and laser workers
  - (8) Perform periodic audits of laser laboratories
  - (9) Investigate laser radiation exposure incidents and compose incident reports The LSO will investigate all known or suspected exposure incidents to determine the cause or causes and make recommendations for changes as needed
- c. Department Chair, Principal Investigator (PI), Division Head and Group Leader
  - (1) Notify the EHS/RM when purchasing, modifying, trading or disposing of Class IIIb and Class IV lasers
  - (2) Ensure that all lasers, laser systems and laser workers are registered with the EHS/RM department
- d. Laser Supervisor
  - (1) Notify the LSO of and laser acquisition, modification, transfer, or disposal. A Laser Registration Form must be submitted for each new or altered laser
  - (2) Assure all laser workers follow laser safety procedures and wear appropriate PPE
  - (3) Assure all laser workers have completed the necessary EHS/RM online laser training
  - (4) Complete In-service training of all laser workers on the specific laser systems on which work is to be performed and forward documentation of the training to the LSO
  - (5) Notify the LSO of any known or suspected exposure incidents
- e. Laser Users
  - (1) Complete the University's Laser Safety Awareness Training initially and annually thereafter
  - (2) Complete the baseline eye examination process
  - (3) Follow all laser safety procedures and wear appropriate PPE
  - (4) Report any known or suspected exposure incidents to the PI and LSO
  - (5) Compose an Incident Report for any suspected or known exposure incidents and forward to the LSO

## 6. PROCEDURES

- a. Laser Training Requirements
  - (1) The EHS/RM online Laser Safety Awareness Training will be completed by all individuals identified as Laser Workers by the PI
  - (2) In addition, the In-Service training on the specific laser system on which work is to be performed will be completed by any Laser Workers who will work directly with the system
- b. Eye Examinations
  - (1) Complete the baseline laser eye examination prior to performing work on any Class IIIb and Class IV laser systems
  - (2) A medical examination is required after any suspected laser injury
- c. Laser Inventory and Registration
  - (1) All Class IIIb and Class IV lasers, Laser systems, and Laser Workers must be registered with the LSO
  - (2) Ensure that all lasers, laser systems and laser workers are registered with the LSO

d. Laser Exposure Incidents

- (1) Medical attention should be sought by individuals known or suspected to have been exposed to laser radiation or non-beam hazards in the laser use area
- (2) Report any known or suspected exposure incidents to the PI and LSO
- (3) The LSO will investigate all known or suspected exposure incidents to determine the cause or causes and make recommendations for changes as needed
- (4) All recommended changes to laser safety procedures and controls resulting from laser incident investigations will be implemented by the PI and followed by the laser workers

e. Record Keeping

- (1) Online Laser Safety Awareness Training records will be maintained by EHS/RM
- (2) Eye examinations records will be maintained by EHS/RM and the LSO
- (3) In-Service Training records will be maintained both by the PI and LSO
- (4) Laser, Laser System and laser worker registration will be maintained by the LSO and EHS/RM
- (5) Laser system audits and inspections will be maintained by the LSO
- (6) Laser exposure incident reports and recommendations will be maintained by the LSO