LASER SAFETY PROGRAM

Last updated: October 2017

1.0 PURPOSE

Work with lasers can be hazardous if proper precautions are not taken. The University of Waterloo’s Laser Safety Program outlines the responsibilities of those working with lasers; and the procedures and controls that must be implemented before starting the work.

Implementation of this Laser Safety Program ensures that risks to those working with or near lasers is minimized, and ensures conformance to the requirements of the Ontario Ministry of Labour, ANSI Z136.1-2007, and other related regulations and standards.

2.0 SCOPE

This Laser Safety Program encompasses all work with class 3B and 4 lasers under University control. The Laser Safety Program applies to all workers, students, and visitors operating or working in proximity to class 3b or 4 lasers. Persons included under this program are identified as laser workers.

3.0 ROLES AND RESPONSIBILITIES

3.1 SUPERVISOR

Laser supervisors must be knowledgeable of the education and training requirements for the lasers under their control. This includes knowledge of:

- The potential laser hazards and associated control measures required.
- Manufacturer's requirements for care and operation of the lasers.
- Operating procedures developed for the work being undertaken.

The supervisor shall also:

- Ensure laser workers complete the laser safety training outlined in this Program and complete the Laser Worker Registration Form prior to operating or working in proximity to class 3b or 4 lasers.
- Report known or suspected accidents to the laser safety officer.
- Ensure lasers under their control are not operated or modified without approval by the laser safety officer.
- Ensure that all administrative and engineering controls are followed.
- Ensure that standard operating procedures (SOPs) are written and available to laser workers under their supervision.

### 3.2 WORKERS
- Must complete the laser safety training outlined in this program.
- Must comply with regulations and standards prescribed by the Laser Safety Committee, laser safety officer, and the laser supervisor.
- Must be familiar with SOPs and specific safety hazards of the lasers they are operating or working in proximity to.
- Will not operate a class 3b or 4 laser unless authorized by the laser supervisor.
- Will report known or suspected accidents to their laser supervisor and the laser safety officer.
- Will ensure all spectators are properly informed of and protected from all potential laser hazards.

### 3.3 LASER SAFETY OFFICER (LSO)
The LSO is directed by the Laser Safety Committee and must be knowledgeable in evaluation and control of laser hazards. The LSO also has the following responsibilities:

- Maintain an inventory of all class 3b and 4 lasers. Classify or verify classification if necessary.
- Complete a hazard evaluation of laser work areas and establish nominal hazard zones.
- Approve SOPs, alignment procedures, and other control measures.
- Provide consultative services on evaluation and control of laser hazards and worker training programs.
- Inspect all class 3b and 4 lasers at least annually for compliance with this Laser Safety Program. Ensure any required corrective action is taken.
- Suspend, restrict, or terminate the operation of a laser or laser system that does not have adequate hazard controls; and advise the Laser Safety Committee of such action.
- Approve wording on area signs and equipment labels.
- Maintain records required by various regulatory bodies. Ensure records are maintained of medical examinations and that training has been provided.

### 4.0 TRAINING
You must complete the following online and practical training:

**Online training** – Laser Safety Training Theory - SO1066
Practical training - Hands on training developed and provided by the laboratory supervisor. This practical training consists of the following components:

- Laser operation as described in the manufacturers laser operation manual
- Specific hazards
- Standard operating procedures (SOPs)

5.0 MEDICAL SURVEILLANCE
Medical surveillance is required for users of Class 3B and 4 lasers and must be completed prior to beginning work with lasers.

The occupational health nurse will conduct the initial eye exam and maintain records. Contact Occupational Health to make an appointment.

The examination consists of:

- Ocular history
- Visual acuity
- Macular function (Amsler grid)
- Color vision (Ishihara)

The worker/student may be referred to a specialist if deemed necessary.

Upon completion of the ophthalmic exam, the occupational health nurse will complete the ophthalmic exam portion of the worker record of training form.

6.0 LASER INVENTORY
The Safety Office maintains an inventory of all class 3B and 4 lasers.

- The laser supervisor is required to provide laser specifications to the laser safety officer.
- The Safety Office will create a report indicating the nominal hazard zone and required OD for eye protection.

7.0 FACILITIES
Facilities housing lasers must conform to ANSI Z136.1- 2007 to prevent unauthorized/accidental entry into the nominal hazard zone of the laser.