Typical Standard Operating procedure for an educational institution

Date: _____
Written by: _____
Verified by Laser Safety Officer: _____
Approved by Laser Permit Holder: _____

Laser: (type, max power/energy, wavelength, and class).
Location: (department, building, room)

Laser beam hazards: (eye hazard, skin hazard)
OD required for operation of the laser: (e.g.1064nm OD 5, 532nm OD 4)
OD required for alignment of the laser: (e.g.1064nm OD 2, 532nm OD 1)

Identify non-beam hazards: (e.g. chemicals, biological samples, high voltage, gas cylinders, cryogens, fire, etc.)
Controls put in place to minimize the non-beam hazards: (e.g. chemicals are prepared in a fume hood; gas cylinders are chained, etc.)

Emergency telephone U of T Police: St George Campus - 82222
UTM 905-569-4333
UTSC – 416-287-7333

Initial preparation of lab environment

1. Obtain the interlock key
2. See that all unauthorized people leave the room
3. Secure the lab door, and activate the lab interlock system and the laser light. Be ready to turn off the laser if any unauthorized person or person without eyewear enters the lab
4. Have emergency telephone number readily available
5. Ensure all people remove wristwatches or other reflective jewelry from their body
6. Set up the optical components necessary for the experiment
7. Turn on the cooling water to the laser (if appropriate)

Laser alignment

1. Check that all beam stops are in place and that there are no unnecessary reflective surfaces in the optical path. One block should be placed behind the first optical component. A second beam stop should be placed behind the second optical component, etc.
2. Set the laser power control to the lowest power possible
3. Ensure everyone in the room wears that appropriate laser safety eyewear
4. Wear the appropriate goggles (alignment goggles)
5. Insert the interlock key into the laser switch and unlock the laser
6. Announce loudly, with short countdown that you are turning the laser on

7. Turn the laser on
8. Align the optical components starting with the component nearest to the laser. When it is aligned, move the first beam stopper behind the third optical component. Repeat this procedure until the entire optical system is aligned. It is important that that the laser beams be limited to one new component at a time until the system is aligned. This will minimize uncontrolled reflection during the alignment procedure

IMPORTANT:

DO NOT REMOVE YOUR SAFETY EYEWEAR DURING THE ALIGNMENT PHASE. IF YOU CANNOT SEE A FAINT IMAGE OF THE BEAM YOU HAVE THE WRONG OPTICAL DENSITY EYEWEAR. TURN OFF THE LASER AND OBTAIN THE CORRECT OPTICAL DENSITY

Laser work

1. Change the alignment goggles with normal operating goggles
2. Ensure everyone in the room wears that appropriate laser safety eyewear
3. Increase beam power (if necessary) and complete the assigned task
4. Always use the lowest beam power necessary for the procedure

Shut Down Procedure

1. Turn off the laser
2. Remove your laser safety eyewear and place it in the proper storage area
3. Allow the laser to cool down and turn off the cooling water
4. Remove the key from the laser interlock switch
5. Turn off the laboratory interlock system and the laser light
6. Return the key to the laser supervisor/proper location

In case of emergency

1. If possible shut down the laser by using the emergency button or by removing the laser key
2. If shut down of the laser is not possible alert everyone to leave the lab and leave the lab yourself
3. In case of fire follow the emergency procedure established in your lab
    - Familiarize yourself with the location of fire extinguishers in your area
    - Familiarize yourself with fire exits in your area
    - Attempt to extinguish the fire only if you can do it safely using one fire extinguisher
    - If not successful leave the room using the pre-established exit
    - Set the fire alarm
    - Inform U of T fire department of any fire doesn't matter how small