

Michigan Technological University, Department of Physics

Laser Safety Standard Operating Procedure (SOP)

Department/Laboratory: \_\_\_\_\_

Date: \_\_\_\_\_

Procedure #: \_\_\_\_\_

Revision Number: \_\_\_\_\_

P.I.: \_\_\_\_\_

- This procedure shall be read and signed annually by all persons who use lasers listed in the SOP.
- This procedure shall be reviewed every two years by the Permittee/Laboratory LSS to ensure it reflects the most current conditions.

1. **LASER SAFETY CONTACTS**

- Laboratory Laser Safety Supervisor (LSS) \_\_\_\_\_  
 Phone number \_\_\_\_\_
- University Laser Safety Officer Al Niemi \_\_\_\_\_  
 Phone number 7-2118/482- \_\_\_\_\_
- Maintenance/Repair \_\_\_\_\_  
 Phone number \_\_\_\_\_
- Medical Emergencies
  1. **123**
  2. Notify the Laboratory LSS and University LSO of all laser-related injuries and near misses ASAP

2. **LASER DESCRIPTION**

Attach latest Laser Inventory (available from David Cook, LSO). Update as required.

3. **LASER SAFETY PROGRAM**

See the Michigan Tech Laser Safety Program Manual for:

- Responsibilities of the laser operator/user, Permittee, and Laser Safety Supervisor
- Laser Permit Requirements
- SOP, Training Requirements, and Interlocks
- Eyewear Requirements, including annual eyewear inspections
- Sign and Labeling Requirements
- Non-radiation Hazards

4. HAZARDS & CONTROLS

HAZARDS AND CONTROLS		
Check if applicable	HAZARD	CONTROL(S)
<input type="checkbox"/>	High Voltage	
<input type="checkbox"/>	Capacitors	
<input type="checkbox"/>	Unenclosed Beam Access to Beam	
<input type="checkbox"/>	Fumes/Vapors	
<input type="checkbox"/>	Ultraviolet Radiation or Blue Light	
<input type="checkbox"/>	Compressed Gases	
<input type="checkbox"/>	Hazardous Chemicals/Waste	
<input type="checkbox"/>	Housekeeping	
<input type="checkbox"/>	Reflective Material in Beam Path	
<input type="checkbox"/>	Fire	
<input type="checkbox"/>	Laser at eye level of person sitting or standing	
<input type="checkbox"/>	Infrared Lasers	
<input type="checkbox"/>	Correct Eyewear	

COMMENTS:

ADDITIONAL CONTROLS		
Check if applicable	CONTROL	COMMENTS
<input type="checkbox"/>	Entryway (door) Interlocks or Controls	
<input type="checkbox"/>	Laser Enclosure Interlocks	
<input type="checkbox"/>	Laser Housing Interlocks	
<input type="checkbox"/>	Panic Button Emergency Stop	
<input type="checkbox"/>	Beam Stops	Infrared Laser must terminate in fire-resistant material and the absorber must be inspected at least quarterly <sup>1</sup>
<input type="checkbox"/>	Master Switch (operated by key or computer code)	
<input type="checkbox"/>	Laser Secured to Base	
<input type="checkbox"/>		
<input type="checkbox"/>		
<input type="checkbox"/>		
<input type="checkbox"/>		

COMMENTS:

<sup>1</sup> Required by 25TAC§.301(s)(1)

5. PERSONAL PROTECTIVE EQUIPMENT

A. Eyewear

<b>LASER EYEWEAR</b>
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For this Laser...			...Wear this Eyewear		
Acquisition date	Type	Wavelength (nm)	Wavelength Attenuated (nm)	Optical Density (OD)	Remarks
(example) Aug 99	CO <sub>2</sub>	10,600	10,600	At least 3.5	Glendale-white frames

Identify each set of laser protective eyewear with a unique designation (name or number).

The following check shall be done annually. Discard unfit eyewear. See section 6.5.

Item	Comments	Date/Initial
Adequate pairs of eyewear for all needs.		
Eyewear specific to wavelength		
OD appropriate for full range of power; alignment to power ops		
Fit snugly		
Labeled for wavelength and OD		
Free of damage excessive scratches		

What (item):	And is available from (where)	which must be worn (when):
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

**6. OPERATING PROCEDURES**

A. Initial preparation of lab environment for normal operation (key position, warning light on, interlock activated, identification of personnel, other)

B. Target area preparation

C. Operation procedures are as follows:

D. Shutdown procedures for this laser are as follows:

E. Special procedures (alignment, safety tests, interlock bypass, emergency, etc.)



# Laser Inventory Form

Michigan Technological University  
Department of Physics

Person responsible for the laser and its use \_\_\_\_\_

Room of location where laser will be used \_\_\_\_\_

Manufacturer # \_\_\_\_\_

Serial # \_\_\_\_\_

Hazard Classification \_\_\_\_\_

Wavelength (s) \_\_\_\_\_

Output power in watts or output energy in joules \_\_\_\_\_

Beam irradiance in  $\text{watts/cm}^2$  or radiant exposure in  $\text{joules/cm}^2$  \_\_\_\_\_

Type of use (Research, demonstration, etc.) \_\_\_\_\_

Responsible person(s) allowed to use the laser.

_____	_____
_____	_____
_____	_____
_____	_____
_____	_____