

LAB SAFETY POLICIES AND PROCEDURES

EDITION 3

Department of Mechanical Engineering, Mechatronic Engineering, and Manufacturing Technology California State University, Chico

- A. **Buddy system**: Students, while not employed by the University, may not operate a power tool, welder, or robot, or pour any molten metal in any lab unless another person is present, in the same room, who is capable of obtaining help in an emergency.
- B. **Safety Training**: Prior to using each of the labs listed below and during the then current academic year, each student, faculty, and staff member shall receive safety training in the use of that particular lab by the Lab Overseer or his designee. If a course uses a lab, the safety training will be an integral part of the course. Those desiring to use the lab and not in a course using the lab will be afforded the opportunity to attend a safety training session conducted as part of a course or, if demand warrants, a special training session conducted by the Lab Overseer or his designee.

Material Removal and Robotics Lab (Plumas 114)
Material Joining and Metal Casting Lab (Plumas 116)
Polymer Manufacturing Labs (Langdon 115 and 118)
Material Removal and Computer-Aided Manufacturing Lab (Langdon 120)
Thermal-Fluids Lab (Langdon 122)
Material Testing Lab (O'Connell 130)
Mechanical Engineering Design Workshop (O'Connell 432)

- C. **Acknowledgement of safety policies and procedures**: Each student, faculty, and staff member using a lab listed above is required to have on file an “*Acknowledgement of Lab Safety Policies and Procedures*” form for that lab completed during the current academic year which (1) verifies receipt of safety training for that lab during the current academic year, (2) acknowledges understanding of the policies and procedures in this document, and (3) acknowledges willingness to comply with these policies and procedures. The form will be signed and dated by the person acknowledging receipt of training, knowledge of the lab safety policies and procedures, and willingness to comply. The faculty or staff member conducting the lab safety training will also sign and date the form confirming receipt of training.

All completed *Acknowledgement of Lab Safety Policies and Procedures* forms will be filed in a *Lab Safety Manual* kept in the Department Office. The *Lab Safety Manual* will also contain the current version of these *Lab Safety Policies and Procedures* and other records described herein.

A list of students, faculty, and staff who have completed an *Acknowledgement of Lab Safety Policies and Procedures* form during the current academic year indicating the labs which the student, faculty, or staff member is allowed to use will be kept in the *Lab Safety Manual* and will be posted in each of the labs listed above.

- D. **Eye protection**: Eye protection must be worn at all times by anyone in any lab where a significant risk exists for eye injury. In Langdon 115, 118 and 120, O'Connell 432, and Plumas 114 and 116, everyone must wear eye protection at all times regardless of the perceived risk for eye injury, except in the areas of Langdon 118 and 120 and Plumas 114 and 116 between the entrance door and the yellow/black limit lines painted on the floor.

Conspicuous signs will be posted at the entrances to, or immediately inside the labs of, Langdon 115, 118 and 120, O'Connell 432, and Plumas 114 and 116 stating “Caution – Eye Protection

Required Beyond this Point” or “Caution – Eye Protection Required in this Area”. A dispenser holding at least six pairs of safety glasses will be installed and maintained in the entry area. Where needed, yellow/black floor tape or paint will indicate safety glass zones.

- E. Shoes: Closed-toed shoes must be worn at all times by everyone in Langdon 115, 118 and 120 and Plumas 114 and 116.
- F. Hair, clothing and jewelry: Hair longer than collar-length must be secured up and out of the way. Loose clothing or jewelry which may become entangled may not be worn when using power tools with rotating or reciprocating parts.
- G. Gas welding: When gas welding or flame cutting, safety glasses and goggles with #4 or darker shaded lenses must be worn. Gloves are recommended, but optional.
- H. Arc, TIG, and MIG welding: When arc, TIG, or MIG welding, safety glasses and a welding helmet with #9 or darker shielded lenses must be worn. The vision of others in the lab must be protected by having the welding arc shielded from view by others in the lab. While welding, gloves must be worn and all skin must be fully covered to prevent skin burns from ultraviolet light. This includes long sleeves and neck protection such as a closed collar.
- I. Pouring metal: Everyone within 10 feet of molten metal during a pour must wear a full face shield, a long sleeve shirt (made of cotton, Nomex, or leather), long pants (made of cotton, Nomex, or leather), insulated gloves, and leather shoes with leggings or leggings which completely cover one’s shoes. A yellow line will be painted on the floor to mark the perimeter of the area in which this protective clothing must be worn. Immediately before a pour is made, it is the responsibility of the person(s) making the pour to ensure the area within the yellow line is clear of people not wearing appropriate protective clothing.
- J. Grinding and sanding: When using stationary grinding or sanding equipment (including wire and ‘soft’, ScotchBrite wheels) gloves should not be worn. While grinding or sanding composite material, a dusk mask must be worn.
- K. Using robots: When robots are being used, the person using the robot must ensure that the area within the reach of the robot is clear and conspicuously roped-off.
- L. Handling reactive liquid chemicals: Safety glasses with side-shields and neoprene chemical gloves must be worn when handling reactive liquid chemicals.
- M. Material Safety Data Sheets (MSDS): For all chemicals in each lab, the Lab Overseer will be responsible for maintaining MSDS in a conspicuous place in the lab which is readily accessible to all those in the lab.
- N. Signage: Near the entrance of all labs, a large, conspicuous sign will be posted that describes the location of the closest emergency phone, the phone number of the campus police, the location of fire extinguishers, first-aid kits, and other emergency equipment and procedures as appropriate to the lab, such as eye-washes, power emergency shutdown switches, and chemical spill procedures. These *Lab Safety Policies and Procedures* will also be posted near the sign.

The physical location of each fire extinguisher, first-aid kit, eye wash, power shutdown switch, and any other piece of safety equipment will be clearly marked with a red vertical strip on the wall at least one foot wide and extending from the floor upward at least 8 feet and containing the name of the equipment in letters visible from at least 30 feet.

Enforcement of Policy

1. Courses using Langdon 115, 118 and 120 and Plumas 114 and 116 will include the following statement in the course syllabus.

Everyone in <insert relevant building and room number> must wear eye protection and closed-toed shoes at all times except in areas between the entrance door and yellow/black limit lines on the floor and during course lectures when no power tool is being used. Anyone failing to comply with all lab safety rules will be told to leave the lab immediately and not be allowed to return to the lab that day. Repeated offenses will result in failing the course.

Courses using O'Connell 432 will include the following statement in the course syllabus.

Everyone in O'Connell 432 must wear eye protection at all times except during course lectures when no power tool is being used. Anyone failing to comply with all lab safety rules will be told to leave the lab immediately and not be allowed to return to the lab that day. Repeated offenses will result in failing the course.

2. Instructors using Langdon 115, 118, or 120 or Plumas 114 or 116 for a class will verify at the commencement of each lab session that everyone in the lab is wearing eye protection and closed-toed shoes, is not wearing inappropriate clothing or jewelry, and has hair appropriately tied back if it is longer than shoulder length. The instructor will then monitor those in the lab throughout the duration of the lab session to enforce the above safety policy.
3. Once each semester, each Lab Overseer, accompanied by the Department Chair and Associate Dean, will make a safety inspection of the lab being overseen. The date and findings will be recorded in a log in the *Lab Safety Manual* kept in the Department Office. The Lab Overseer will ensure that all safety problems have been corrected by a date specified by the Department Chair and Associate Dean at the time of the inspection. Once corrected, the problems and corrections will be conveyed by the Lab Overseer to the Department Chair in a written report which will be kept in the *Lab Safety Manual*.
4. The Dean, Associate Dean, and Department Chair will make unscheduled visits to the labs listed above to monitor compliance with these procedures. They will maintain a log in the *Lab Safety Manual* of the date and time of each visit, the lab visited, and their findings.
5. Students using a Department lab not in connection with a particular course and observed by a faculty member violating a safety policy in this document (including not having an *Acknowledgement of Lab Safety Policies and Procedures* form on file for the current academic year) will be required by the faculty member to immediately leave the lab (with University Police escort, if required). A second violation observed by a faculty member will result in the student being reported to the Student Judicial Affairs Office for possible administrative probation. Names of violators will be recorded in a log in the *Lab Safety Manual* kept in the Department Office. The log will include the violator's name, date of the violation, description of the violation, and name of faculty member observing the violation.
6. A faculty or staff member observed to be out of compliance with any of these policies and/or procedures will be referred to the Dean for possible disciplinary action.

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