



# Lab Management Plan Training

For

Lab Number: S-344

Lab Type: Analog and Digital  
Control Systems Lab

Department: Electrical Engineering  
and Computer Science

Chemical  
Laboratory

Free

Document No.:	LMP-S-344
Revision Date:	January 2015
Approved By:	EECS Dept Chair Facilities EHS Dept



## 1. Scope and Introduction

This document supplements the MSOE Lab Management Plan (LMP) and provides specific information relevant to this lab. This document will be used to train students taking courses in this lab to ensure 1) a safe environment and 2) compliance with environmental, health and safety regulations.

This training information is intended to familiarize the student with the lab environment including safety equipment and procedures, clothing requirements and limitations on possessions that may be brought into the lab, information on potentially hazardous material that may come into the lab; special equipment and procedures that may be utilized during the quarter.

## 2. Basic Rules

- The lab is open for access from 7:00 am to 10:00 pm Monday through Thursday, 7:00 am to 5:00 pm Friday,
- Chemicals are not allowed in the lab.
- Food and drink are allowed in the lab since there are no chemicals in the lab
- Smoking is not allowed in MSOE buildings. Chewing tobacco is also not allowed in the lab.
- No children or pets are allowed in the lab. This ban does not pertain to seeing-eye dogs, stroke dogs or other working animals.
- The lab is to be kept neat and orderly. It is understood that during project construction periods some messes and disorganization will occur, however as soon as work is done the area must be cleaned up and organized to prevent injuries. Return all test leads to the holder on the bench from which they were removed.
- Due to open geared rotating machinery, loose fitting or flowing clothing, neckties, long necklaces or neck scarves are **not** permitted in the lab when working.
- Due to open geared machinery, hair shoulder length or longer should be pulled back and out of the way of your face for the period of time you are in the lab.

## 3. LMP Training for Students

### A. Emergency Action Plan

Basic information:

- The emergency number on campus is 7159 and can be dialed from any on campus phone. If using a cell phone dial (414)277-7159.
- The campus phone for the lab is located next to the door of the room just inside the room. **The nearest Campus phone not in the Lab is**

located next to S306 and has a one button call selection for Public Safety.

- The evacuation route map is located on the wall near the door. The emergency flip chart must be posted in the lab. If it is missing, contact the EHS Department at X7144.
- MSOE's emergency response flip chart is posted in all labs and classrooms. It covers the following emergencies: criminal activity, suspicious packages, bomb threats, medical emergencies, fires, chemical spills, hazardous odors or leaks, utility failures, armed shooter, severe weather, persons with disabilities, and civil unrest.
- The fire extinguisher for the room is located on the wall of the room to the right of the door, as you exit, just below the telephone. It is an A-B-C class extinguisher using FE-36 as the agent. The backup extinguisher is a Dry Chemical type A B C class located on the right hand wall just before the junction of the North-South hallway with the Northern East-West Hallway. *Note: only trained personnel may use a fire extinguisher. A review of the attached fire extinguisher factsheet will satisfy this requirement.*
- The rally point (assembly point) for this lab is the Athletic Field located North of State Street, exercise caution when crossing the street.

## B. Fire Emergency

If you observe a fire:

1. Alert others in the lab and the professor running the lab, if present, to the fire.
2. Do not attempt to fight the fire unless you believe you have sufficient time to evacuate the room after using the fire extinguisher. If you use the extinguisher, pull the pin, aim at the base of the fire, squeeze the handle and discharge the contents of the extinguisher in a sweeping motion at the base of the fire.
3. Leave the room, turning off the circuit breakers to the room if you have the time to do so. They are located to the left of the room door as you exit the space. Attempt to close the door behind you to limit the fire's progress only if you can do so safely.



4. Activate the pull station located to the immediate left of Southeast stairwell exit doors as you pass it.
5. Call the campus emergency number when you have reached a safe location (277-7159 or 7159 from a campus phone). Evacuate the building and go to the rally point. Do not use the elevators.
6. Do not under any circumstances leave the rally point to return to the building until you are told it is safe to do so by competent authority.

In the event of a Fire Alarm sounding:

1. Leave the room, turning off the circuit breakers to the room if you have the time to do so. They are located to the left of the room door as you exit the space. Attempt to close the door behind you to limit the fire's progress only if you can do so safely
2. Evacuate the building and go to the rally point. Do not use the elevators.
3. Do not under any circumstances leave the rally point to return to the building until you are told it is safe to do so.

#### C. Personal Injury

- Minor injuries may be taken care of with a first aid kit, which is available in S350 and contains a small inventory of adhesive bandages to contain the blood from a very small cut. Once this First Aid treatment has been accomplished, contact the Campus Health for further care of the minor wound.
- If medical attention is required, contact Public Safety at (414) 277-7159 (or 7159 from campus phone).

In the event of discovering blood or bodily fluids in the lab:

- Do not attempt to clean up the area due to the potential for blood borne pathogens. There are staff personnel in the Facilities department specially trained in containing and cleaning up blood and other bodily fluids.
- Leave the area and call (414) 277-7159 (or 7159 from campus phone) immediately.

#### D. Chemical Spill

- There is no storage or handling of any chemicals in this lab

#### E. Hazard Communication (Right to Know)

- MSOE has implemented a chemical inventory system. All of the chemicals at MSOE must be accounted for in this system. Certain

chemicals are required to be bar-coded; others only require that an MSDS be uploaded into MSOE's MSDS library.

- To ensure that MSOE's chemical inventory and MSDS library is accurate, all chemicals entering the lab must first be entered into MSOE's chemical inventory database. The MSDS for all chemicals entering an EECS lab must be approved by Valery Meyer or Martin Handley.
- Approved containers will be marked with either a bar code or pink label. This indicates that the chemical has been approved and the MSDS has been uploaded into the database. The MSDS is located on the room bulletin board and is available via the MSDS link on the MSOE intranet (<https://inside.msoe.edu/ehs/msds>).

#### F. Chemical Handling

- There is no storage or handling of any chemicals in this lab. Any chemicals found in the lab will be confiscated and be cause for retraining.

#### G. Chemical Storage

- There should be no storage or handling of any chemicals.
- MSOE has adopted a hazard classification labeling scheme to help segregate incompatible chemicals. Chemical storage is organized according to MSOE's chemical segregation system. A poster describing MSOE's classification system can be found on the EHS site,

#### H. Chemical Disposal

- Bring batteries for recycling to S348 for collection.
- Personal lamps with have tube fluorescent lamps or compact fluorescent lamps must be taken to the Technical Support Center for proper handling/disposal.
- The EECS Satellite Accumulation Area (SAA) is located in S349. Please contact the Technical Support Center if you have any unwanted materials.
- Lab techs are responsible for labeling unwanted materials with MSOE's Neon Green 'Unwanted Material' label. Unwanted materials that are not appropriately labeled will not be removed from the SAA.
- The lab techs will arrange transfer of unwanted materials from the SAA to MSOE's Central Accumulation Area (CAA).



- Only certain MSOE personnel have appropriate training and are authorized to transport unwanted material from the SAA to the CAA.

I. Personal Protective Equipment (PPE)

- This lab has no special personal protective equipment requirements.

J. Chemical Fume Hoods

- N/A

K. Other Lab Rules

Special Equipment in the lab

- Each station has a desktop computer, a Quanser Universal Power Supply and an associated Servo Motor and cabling set.
- Use of this equipment is limited to those students in the EE and BE controls courses. No other students should be working with this equipment without special permission from the Professor in charge of the lab.
- Students operating this equipment without permission or a professor's guidance will be subject to costs to repair or replace units damaged by their actions.
- Access lists will be provided to TSC by the professor in charge of the class during the quarter the class is in session.

Special Equipment Usage

- The Quanser equipment usage will be covered by the instructor of the lab if there are specific procedures for this lab. Refer to the instructor's syllabus for details.

L. Other

- If there are any questions as to the safe use of an item brought into the lab as part of a senior design project or any special function such as a demonstration; contact the EECS Technical Support Center for a determination of hazard or risk.

#### 4. Training Documentation

Training will be documented using the attached form titled, "Student Laboratory Management Plan (LMP) Training Verification". NOTICE: Students must receive retraining whenever they demonstrate that training was not understood (i.e. a failure to follow safety precautions is observed). This must be done before the student is allowed back into the lab.







# Fire Extinguishers

## A Factsheet on Choosing & Using Fire Extinguishers

Individuals should attempt to fight only very small or incipient stage fires and only if they understand the proper use of a fire extinguisher.

### Types of Extinguishers

Fire extinguishers are rated by the type of fire they can put out. It is important to choose the proper fire extinguisher for each fire. Fire extinguishers are labeled with letters and/or pictures to indicate the type of fire on which the extinguisher is effective.

#### Ordinary Combustibles Fire



**A**  
Paper, wood,  
Plastics,  
fabric,  
Rubber,  
trash

#### Flammable Liquids Fire



**B**  
Gasoline,  
Oil,  
Grease,  
some Paints  
and solvents

#### Electrical Fire



**C**  
Energized  
Electrical  
Equipment;  
Appliances,  
Computers,  
Circuit

Breakers, Wiring

A combination **ABC Dry Chemical** extinguisher can be used on more than one type of fire.

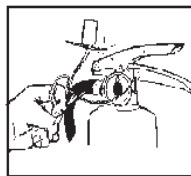
### Remember the

#### P.A.S.S. Word

There are four basic steps to using a fire extinguisher.

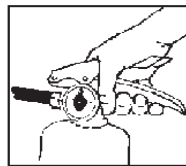
#### Pull

Place the Extinguisher on the floor. Hold it by the tank



(pressure on the handle would pinch the pin). Pull the pin straight out.

#### Aim



Start 10 feet back from the fire. Aim at the base of the fire.

#### Squeeze

Squeeze the lever on the fire extinguisher.

#### Sweep



Sweep from side to side, moving in slowly until the fire is out.

#### Get Out

If the fire gets bigger, close the door and evacuate.

### Be Prepared

Training and practice are the best ways to prepare for emergencies. Make certain you know the P.A.S.S. system and understand how to safely use a fire extinguisher before you ever need to.

- Don't force yourself to fight a fire that makes you uncomfortable or puts you at risk.
- Always let someone know and make certain 911 has been called before using an extinguisher on a fire.
- Fire extinguishers are small quick fixes. If you are unable to put out the fire with one extinguisher, leave and close the door behind you.
- A fire involving any portion of building structure is too big for a portable fire extinguisher.
- While using a fire extinguisher stay low, the smoke is filled with carbon monoxide and many other toxic gases.
- Don't let the fire come between you and your exit. Keep your back to the exit