**Engineering Projects Safety Plan**

**NOTE: Areas in blue need to be completed by the team Safety Officer.**

**INSERT PROJECT TITLE HERE**

|  |  |
| --- | --- |
| **Department:** | ***Insert*** |
| **Date Plan was written:** | ***Insert*** |
| **Date Plan approved by Faculty Advisor:** | ***Insert*** |
| **Faculty Advisor Name/Phone/Email:** | ***Insert*** |
| **Lab Phone (if applicable):** | ***Insert*** |
| **Project Team Leader Name/Phone/Email** | ***Insert*** |
|  |  |
| **Project Team Members:** | ***Team member 1******Team member 2******Team member 3******Team member 4******Team member 5****……..etc.**[attach complete roster on separate page if more than 10 team members]* |
| **Location(s) used by this project:** | ***Insert*** |
| ***Project Start Date:*** | ***Insert*** |
| ***Project Duration:*** | ***Insert*** |

***This proposal is not meant to serve as a procedural guide to tasks but as tool to help students, principal investigators, staff and EH&S identify training needs, hazard controls, personal protective equipment and other issues that students need to be alerted prior to conducting work.***

**Engineering Projects Safety Plan**

**Section I.**

**List of Hazardous Materials Involved**

List all types of hazardous materials and the approximate quantities they will be used in.

**REQUIRED ACTION(s):**

* **Read the Standard Operating Procedure for each class of chemicals in addition to the *Safety Data Sheets*. SOPs can be found at:** [**http://www.ehs.uci.edu/programs/sop\_library/index.html**](http://www.ehs.uci.edu/programs/sop_library/index.html) **and**

**SDSs can be found at:** [**www.ehs.uci.edu/msds.html**](http://www.ehs.uci.edu/msds.html)

* **Know how to dispose of generated waste for all hazardous material and understand the procedure for filling out a hazardous waste label which can be found online:** [**http://www.ehs.uci.edu/programs/enviro/index.html**](http://www.ehs.uci.edu/programs/enviro/index.html) **and click under “*Labels*”.**
* **Know how to handle spills for any chemical used and know the location of the safety showers and eyewash in case of exposure.**

|  |  |  |
| --- | --- | --- |
| Name/ Hazard Class(Ex. *Oxidizer, Flammable, Corrosive etc.)* | Required PPE | Reviewed the following: |
| 1. *Insert Name*/Hazard Class
 | **Insert Required PPE** | * *Safety Data Sheet (SDS/MSDS)*
* Hazardous Waste Disposal Procedures
* Spill/Accidental Release Measures
 |
| 1. *Insert Name*/Hazard Class
 | **Insert Required PPE** | * *Safety Data Sheet (SDS/MSDS)*
* Hazardous Waste Disposal Procedures
* Spill/Accidental Release Measures
 |
|  |  |  |
|  |  |  |
|  ..*insert more rows if needed* |  |  |

**Section II.**

**Equipment and Experimental Apparatus**

* List all equipment used and Personal Protective Equipment (PPE) that presents any hazards.
* This should include any shop equipment, equipment that utilizes high/low temperatures, pressures or any other parameters that could possibly result in injury to personnel.
* Engineering controls are safety controls either part of the equipment or externally installed that guard against safety accidents such as equipment guards, safety alarms, detector etc.

**REQUIRED ACTION(s):**

* **Read the Manual for each piece of equipment and note any start-up, shut-down or operational safety issues.**

|  |  |  |  |
| --- | --- | --- | --- |
| Equipment | *Major Hazard* | Required PPE | Engineering Controls |
| Insert | **Insert** | **Insert** | **Insert** |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |

**Section III.**

**Personal Protective Equipment (PPE)**

This section indicates all PPE as required by both *Section I*-*Hazardous Materials* and *Section II*- Equipment.

**REQUIRED ACTION(s):**

* **Examine Sections I and II, take the more rigorous PPE requirement and this is the PPE that you need to have available.**
1. **Hand Protection**

***Insert***

1. **Eye Protection**

***Insert***

1. **Skin and Body Protection**

***Insert***

**Section IV.**

**Training Requirements**

Using the information in Sections I, II and III-Identify any training that would need before starting your project.

|  |  |
| --- | --- |
| **Equipment Training** | **Operations Training** |
|  |  |
|  |  |
|  |  |
|  |  |

**Section V.**

**Pre/Post Procedural Check-Off Lists**

***Complete one for every major task/operation. Insert-a list of preparatory steps that you need to have completed before working on major tasks of the project. This list needs to be written for both operations and equipment.***

***Example for Operations:***

*If you are lighting a torch or working with flames, an item here should be removal of all flammable and combustible items from your work area.*

***Example for Equipment:***

*If you are finished working with a Bandsaw-make sure all guards are left on the blade area. Another example, if you are working with lines carrying hazardous equipment, make sure all lines are purged after use.*

**Name Task or Operation:**

* ***Insert List of Pre/Post procedural***
* ……..
* ……..
* ……..

**Section VI.**

**Project Stages: Timeline and Description of tasks**

**Designated Work Area**

**Insert-if one phase/step of your procedure requires containment or special area designated for it, include these exceptions in this section. Examples may include designated areas for welding, sanding etc.**

***Procedural Description of major tasks***

* ***This section can be separated according to the different phases or tasks of the bigger project.***
* ***Where there is a hazardous step- include c*autionary notes about its execution.**
	+ ***Ex. “Open the Nitrogen cylinder valve one quarter of the way.”***

 ***Note: Do not stand near N2 inlets since one full breath of N2 can cause unconsciousness.”***

* ***Note the importance of carrying out steps in order if lack of order is hazardous.***

**Whenever there is a time specified or expected, be sure to note it for both major and minor steps.**

* **How often will the process be performed?**

**Insert**

* **How long will one run of the process last?**

**Insert**

* **What is the life cycle of the process?**

 **Insert**

**Shut-off and Closing of operations –Complete this section for every major task**

***Insert***

**At the end of major task and the day’s work, make sure you list all items that need to be safely put away, waste that needs to be disposed of and other special cleaning procedures.**

**Insert**

* **Anything that needs to be carried away safely, capped, vented etc.**
* **Hazardous waste disposal should be noted in this section**
* **Equipment Safety shutdown sequences- if relevant should be included here.**
* **Items that need to be stored safely with special precautions must be included.**