

## PIRLS Laboratory Orientation

This orientation was created to provide you with important information regarding the use of the PIRLS laboratories. Please read through the following information carefully and keep this handout as a reference.

### I. TA/TF Information

Include names, contact info, and office hours of ALL TA/TFs associated with the lab.

### II. Lab Policies

This lab offers a variety of resources and opportunities. Please respect the lab and the students working here by abiding by the following laboratory policies:

1. Follow all safety procedures.
2. Clean up your mess.
3. Put supplies and tools back where you found them.
4. **Do not remove any supplies or tools from the PIRLS laboratories under any circumstances.**
5. Use of the computer lab is not permitted without a TA/TF present.
6. Do not operate large power tools without a TA/TF present.
7. During classes in which you are actively using the lab space and materials, a TA or TF must check your space and dismiss you before you are allowed to leave.
8. At the end of the semester, all materials, parts or products left in the lab become property of the PIRLS laboratories and may be displayed, recycled, or disposed of as deemed necessary.

Always respect others' space and work.  
The use of this lab is a privilege. Treat it as such!

### III. Safety Precautions to be taken in the Lab

The following safety precautions should be exercised at all times while in the PIRLS laboratories.

1. Conduct yourself in a responsible manner at all times in the laboratory.
2. Never work alone. Always be sure to have a group member or TA/TF present while working in the lab.
3. Always wear safety goggles when handling tools and equipment. Face masks should also be worn when using sanders and saws.
4. Keep work areas clean. This includes the work tables, the computer lab, and the aisle ways.
5. Know the locations and operating procedures of all safety equipment in the lab. A fire extinguisher is located at the entrance of the lab. A sink is located in the

- middle of the lab under the windows. First aid kits are available by the sink.
6. Be aware of the exits in the lab. You can exit the lab through the main door, the back door, and the side door in the computer lab in the event of an emergency.
  7. **Report any accident or injury to the professor, TA or TF immediately, even if the accident is minor.**
  8. Report any unsafe working conditions to your professor, TA or TF.
  9. When removing an electrical plug from its socket, grasp the plug, not the electrical cord. Hands must be completely dry before touching an electrical switch, plug, or outlet.
  10. When using tools and machinery, keep loose clothing and hair tied back to prevent it from catching.
  11. When working with tools and machinery, close-toed shoes should be worn at all times.
  12. Do not use laboratory tools and machinery unless you know how to use them. If you are unsure of how to use them, ask your professor, TA or TF. Only use laboratory equipment for its designed purpose.
  13. Avoid disturbing or distracting other workers while they are performing laboratory tasks.
  14. Do not store projects in the aisle ways. Store them in a designated locker or space above the lockers/cabinets. Walkways and aisles must be kept clear.
  15. Access to emergency equipment and first aid kits must be kept clear.
  16. Limit food and drink in the lab. **NO food or drink is permitted in the computer lab.** If you choose to eat in the main lab, be sure to clean up after yourself when you have finished.
  17. For specific assignments, follow all directions and protocols.

#### **IV. Lab Consequences**

Failure to comply with ANY of the above policies or safety procedures will result in a **decrease in grade**. If the above laboratory policies or safety procedures are repeatedly violated during the course of the class, **unlimited access to the lab will be removed** and students will only be able to use the space during designated office hours. Use of this lab is a privilege and many have worked hard to provide this space for you. **Please respect and obey the rules and limitations that have been made.**

#### **V. Resources in the Lab**

##### **References**

A wide variety of books, engineering journals and previous reports/projects are available for use in the Design ME Lab. References are available on the large shelf near the entrance of the lab. Use of the materials is permitted at any time, but **you are not permitted to remove reference materials from the lab.**

##### **Building Material**

Spare parts and materials that can be used for future projects are available in the “Stock Material” cabinet next to the reference shelf. Feel free to take materials that will

be useful to you. Similarly, if you have excess material that you will not be using, please donate it to the material supply for future students.

In addition to stock material, fasteners, including nails, nuts, bolts, screws, etc., are also available for use. These are available in the “Tools and Supplies” cabinet.

### **Tools and Supplies**

A number of tools and supplies are available in the “Tools and Supplies” cabinet, located next to the lockers in the back of the lab. Tools available for use in the DesignME lab only include:

- |                                  |                 |
|----------------------------------|-----------------|
| -rulers, measuring tapes, levels | -stopwatches    |
| -vices/clamps                    | -weights/scales |
| -hand saw                        | -jig saw        |
| -circular saw                    | -drills         |
| -palm sanders                    | -belt sanders   |

Various cleaning supplies are located around the lab. Please be sure to clean up your work space after you have finished your project. A sink is also available at the back of the lab. Office supplies and paper are available in the DesignME Computer Lab. These are only for use under TA/TF supervision.

### **Computer Programs**

The following programs are available for use on the computers in the DesignME Computer Lab:

1. Adobe Acrobat – Reader 6.0.2
2. Catalyst: Plastic Prototyping Simulation Software
3. eDrawings: This is a viewer that can be used to look at Pro-E and SolidWorks files without actually having Pro-E or SolidWorks installed on the computer
4. EES – Engineering Equation Solver
5. Epson Scann! II
6. Microsoft Office Package: Access, Excel, Frontpage, Infopath, Powerpoint, Publisher, Word, Project
7. MatLab
8. Minitab Release 14
9. Minitab Quality Companion 1: This program is good for project organization: Record group meetings, QFD, various charts and diagrams, team charters, etc.
10. National Instruments Software: DAQ software and hardware (limited to one computer)
11. PDMWorks Clients 2005
12. Pro/Engineer Wildfire 2.0
13. RapidPRO: Paper Prototyping Software
14. SolidWorks: with CosmosWorks

## **Prototyping Capabilities**

A number of machines are available for prototyping. These include:

1. Roland CAMM-1 Paper Prototyper: creates paper print outs which can be stacked to create a paper model of the object being prototyped. This machine is also used to verify the accuracy of a CAD drawing before advancing to plastic prototyping.
2. Stratasys Dimension FDM Plastic Prototyper: creates prototypes from ABS plastic by building up layers that are adhered together.
3. CNC Mill and Lathe: both of these machines allow for metal prototyping.