

## **Motor Testing Safety Plan**

Anyone powering the motor controller and thus the electric motor must first make sure the following is complete:

- The area is clear of any loose objects that could interfere and everyone in the room is notified there will be a test going on.
- There is at least one other person present with a phone who is ready to call public safety in case of an emergency.
- The motor is securely attached to the test bench. If the test being run requires the dynamometer, the dynamometer must independently be securely attached to the test bench as well as the motor.
- The test must be approved by the safety officer or Professor Nadovich before connecting the motor to the power supply.
- The emergency electrical cutoff button must be located and both the tester and the spotter must be aware of its location.
- Everyone within the safety zone (15ft) must be wearing safety goggles.
- No loose clothing, loose jewelry, or long hair (if so must be tied back) is permitted in the safety zone.
- The test procedure and expected results must be reviewed before turning on the power to the motor. If the test exceeds the predetermined limits for RPM or torque, the test must be shut down immediately.
- Any test requiring the motor to turn at over 600 RPMs requires a separate test plan.

Once all the tests are complete or there is more than a 5 minute break between the tests, the motor controller should be unhooked from the power supply.

Tests involving the motor and dynamometer also adhere to some of the rules outlined in the Mechanical Engineering Senior Design Handbook: Safety Section. These rules have been modified to pertain to the motor and dynamometer.

## Department Safety Rules and Procedures

### 1. Working Hours

1.1. Work is primarily performed in the motor testing area under the direct supervision of a technician or faculty advisor weekdays between 8 am- 3:45 pm. 3:45pm - 4:00pm is reserved for cleanup. In *special cases* the students can work in the shop at other times under the direct supervision of a technician or faculty advisor.

### 2. Impairment

2.1. Students may not work, or be in the machine shop or project rooms while others work, when impaired. Impairment includes: being under the influence of alcohol or drugs (including prescription or over the counter medication), exhaustion, sleep deprivation or any other condition that adversely affects one's judgment.

### 3. Motor Testing Area

3.1. Students participating in department approved projects are permitted to work in the motor testing area if they have the authorization of the supervising technician in the shop (staff or faculty member) and follow the following basic rules:

- Safety glasses must be worn at all times
- Long pants are required to prevent burns from hot chips
- Remove loose fitting clothing, jewelry, and tie back long hair
- Closed toe footwear is required (no sandals or flip-flops)
- A dimensioned drawing that meets the standard set forth in ME210 is *required* before you can begin a machining operation

3.2. The number of students that can be supervised any one time is based on the *supervising technician's assessment* of the:

- Student's proficiency with the equipment
- Complexity of the operation
- Overall level of activity in the shop

**The supervising technician's assessment is final.**

### 4. Hand and Power Tools

#### 4.1. General Procedures

- Safety glasses must be worn by *everyone* in the work area when power or

hand tools are being used.

- Long pants are required to reduce injury from hot chips or flying debris.
- Ensure the work area is clean and the activity level in the work space will not distract you from the operation.
- 

5. Electrical Equipment

- 5.1. Students will not energize electrical components they built or modified that operate above 24V without approval from the faculty advisor or shop technician.