

## Teaching Assistant Reminders

1. Check out keys for office and lab in departmental office (Room 2420).
2. Fill out payroll and insurance forms in Room 2440 by August 31 for September 1 coverage.
3. Check out lab equipment from Room 1533. Perform lab inventory check of all equipment in lab room, including cabinets. If any item needs repair, bring to Room 1536 immediately. Check lab supplies and replenish if needed.
4. Check out book for course (desk copy), if needed from Room 2414 EH.
5. Read the Guide for Electrical and Computer Engineering and Lab Policies and Procedures handouts.
6. Meet with course or lab supervisor and complete the TA Advisory Appointment Worksheet together. Return worksheet to Jim Barner before end of first week of school.

## Helpful Hints

1. See the professor in charge of the course or laboratory you are teaching as soon as possible. Be sure you are clear on your role in course and goals of course. Meet with the professor regularly throughout the semester.
2. Office Hours and Other Activities: Arrange to hold office hours at convenient times. Spread these hours on different days and times to accommodate students. Number of office hours per week will be dependent on teaching assignment. Arrange to hold problem solving sessions, tutorials, demonstrations and/or review sessions. Check with professor supervising course.
3. Teaching:
  - a) Be firm, helpful, fair and clear.
  - b) Assume confident attitude by being prepared for class, lab or session: Practice.
  - c) Vary your presentations and style.
  - d) Make it fun for yourself and the students – be enthusiastic and interesting.
  - e) Encourage feedback and give positive feedback.
  - f) Treat students with respect.
  - g) We need teachers. Think about it as a profession.
4. Grading:
  - a) Check with your supervising professor on policies; keep records; be prepared to answer questions related to grades. Don't be afraid to give grade deserved.
  - b) Incompletes, grade changes – see page 2 of "Guide for ECE".
  - c) In laboratories-
    - 1) Give deadlines, requirements, and penalties—be definite and stick to it. Be **clear** about what is required (especially in lab reports).
    - 2) No retakes or extra work for credit.
    - 3) Not all students are A's or B's. If a student is clearly way below norms, he/she **should** get a C, D, or F.
    - 4) Often the lab is designed to teach measurement theory and technique for engineering practice by way of preparation, analysis and report. Don't rely only on final exams for the grade—you should have a component of lab technique and performance in your grade.
5. Use fast feedback forms and mid-semester evaluations.
6. Laboratory:

Be prepared! Run through the equipment before the lab session to avoid embarrassing problems.
7. All Courses:

Work at being enthusiastic. It may wear off on some of the students who aren't really interested. Relate topics to real world and other disciplines.

## **Characteristics of Good Teachers**

Good teachers master their subjects.

Good teachers have a passion for their fields and they convey it.

Good teachers are organized, prepared, and especially clear in presentation.

Good teachers know their students as individuals, care about them, and, within limits, listen to them.

Good teachers create a positive environment for learning, for asking questions, and for freedom to grow and change.

Good teachers ask a lot of their students, challenge them, have demanding expectations.

Good teachers are able to relate abstract ideas to the realities of everyday life.

Good teachers appreciate that part of their job is to teach people how to learn.

Good teachers invent ways for students to become active rather than passive learners.

Effective teachers enlist their colleagues and all the staff to become collaborators in the enterprise of teaching.

Teachers learn from their mistakes, design feedback mechanisms, and continually experiment with ways to improve.

Good teachers are interesting people and have fun.

By Professor Thomas E. Cronin, On College Teaching, delivered at the Third Annual Lilly Conference on the College Teaching (Lake Arrowhead, California – March 3, 1991).

## Constructive Criticism for the Faculty and Staff at the University of Wisconsin, Madison

I've been a student at the University of Wisconsin, Madison for six years now. (That's including two semesters and two summer co-op assignments.) After years of listening to friends, as well as living the ECE experience, I feel that I can offer some constructive criticism to the faculty and staff at our renowned university. This article is modeled after a handful of professors who have had a profound effect on my life.

Give the classroom a professional atmosphere.

Don't make a party out of class. Stick to task at hand—conveying the day's material to the students. This is not to say that occasional humor is not a good thing. Use of effective pauses is important; it gives the class a chance to catch up.

Don't come to lecture unprepared and read the book to the class. Students will read the book on their own time, to *enhance* the lecture.

Prepare at least one example for lecture. A carefully chosen example can clarify an abstract point (i.e., a picture is worth a thousand words.) But remember, examples are most effective when the lecturer can work all the way through without getting hopelessly stuck. This situation is embarrassing for the lecturer and can lead to loss of credibility.

Don't erase too soon.

Never erase what you've just written! One of the most frustrating things experienced by students is having the chalk board erased before they get a chance to write down all the information. If there are three panels of chalk board available, use all three before going back to the first and erasing.

Make effective use of chalk board space.

Don't stand in front of what you've just written. Write, then move aside to give students time to copy down the information.

Don't write too small, or cram too much in a small space. Write large enough for the whole class to see. Be neat and write carefully.

Don't go back and write more on an already full panel. Go to the next panel in the rotation, erase and start with a clean space.

Don't write on the bottom of the board. Students who aren't in the front row can't see the bottom of the board.

Overheads and Handouts

Lecturers who use overheads tend to remove the transparencies before the students get a chance to copy down all the information. This is like the "Don't erase too soon" scenario. Furthermore, studies show that for effective learning, the student must hear the material spoken, see it *being* written, and write it themselves. (I learned that in Motivation class.) This means that prepared transparencies should never be used to present information that you want students to retain. The same applies to handouts.

Handouts should be used as informational only, not to teach. They are effective when used to *supplement* a lecture or to present tables of information one needs to complete homework. Handouts are very helpful when presented a lecture early to be covered *at a later date*. This gives students an opportunity to study the material before being lectured on it.

### Ask questions.

... not the rhetorical kind; those go in one ear and out the other. Students get used to hearing questions posed by the professor, knowing that they aren't really expected to answer them. Students will take an active rather than a passive role in a classroom where the professor poses questions that can be answered by students, and waits for a response. If students don't respond, urge a response. Don't be shy. Put students on the spot. Formulating answers in class, rather than being pencil-wielding recording robots, immensely improves the student's retention rate.

### Avoid loud, distracting noises in the classroom

There is some type of drilling work that goes on in the ECE building while classes are in progress. This noise is so loud that the person teaching the class often has to wait until the noise stops and then resume teaching or yell to be heard above the racket. Needless to say, this makes a very poor learning atmosphere.

### Homework

Don't be lazy!! Design homework problems that can't simply be copied from last year's or last semester's homework sets. Be selective, or design your own problems, to be sure that the homework covers the type of problems that will be on exams.

Don't assign too much homework. Remember, a problem that seems trivial to the professor could take a student hours to complete; and many students following the guidelines in the advising booklet may have three or four other engineering courses. One can quickly become buried by homework, affecting their performance in all classes. Make sure the amount of work does not exceed the credit load assigned to the class.



**TA Self-Evaluation  
Videotaping Request**

Internal Transfer \_\_\_\_\_

Date: \_\_\_\_\_ Date Needed: \_\_\_\_\_

Name: \_\_\_\_\_

Dept: \_\_\_\_\_ Phone: \_\_\_\_\_

Address: \_\_\_\_\_

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Date Issued	Date Returned	Equipment Needed:

**Remember:**

**You can arrange to videotape yourself.**

**The college will pay the expenses.**

**Just see Jeff in 1712 Engineering Hall!**

**Lab Policies and Procedures**  
**for**  
**Department of Electrical and Computer Engineering**  
**Faculty and Teaching Assistants**  
**University of Wisconsin-Madison**

**INTRODUCTION**

This set of notes is available to all Electrical and Computer Engineering (ECE) faculty and lab TAs, in an effort to unify the teaching of all labs in the department, improve safety and efficiency, and decrease the expense of labs and repair of equipment. The ideas contained in these notes should not be substituted for good common sense but as a resource for the most common questions that arise in the course of instructing a lab.

**Please take a few moments to read this now and use it as a reference during your teaching assignment. All research and instructional labs must have a Laboratory Emergency Information Form completely updated each semester and posted inside and outside the lab. If you need a copy of the form, obtain from Lori Burrow.**

**SHOP ORGANIZATION**

The Parts and Equipment Shop is in Room 1533 Engineering Hall (EH) under the supervision of David Wirkes, Electronic Technician (located in Room 1438 EH). He is responsible for maintaining, dispensing, and recording electronic component parts and common user equipment. He also provides advice on part pricing, availability, acquisition, and repairs of some equipment. The Main ECE Repair Shop is in Room 1536 EH under the supervision of Frank Bayer, Electronic Technician. Frank performs repairs and calibrates ECE instructional and general usage equipment. He also advises on the selection of lab equipment; and designs, develops, and fabricates electronic prototypes for instruction and research. Frank Bayer also supervises the student electronics shop in 1538 EH.

**EQUIPMENT SIGN-OUT AND USAGE**

**Dedicated equipment** is normally found in the lab to which you are assigned. It does not have to be requisitioned from the department. It resides in the lab and is used as needed. **It should never leave the lab unless it is brought in for repair.**

The lab TA should know the whereabouts of all lab equipment at all times and is responsible for its security and the prevention of damage to it. It is important to have a list posted in the lab of all the dedicated and general usage equipment checked out each semester. If a list does not exist, it is the TA's responsibility to create one and to give a copy to Lori Burrow. TAs are **required** to sign a lab responsibility form from Lori Burrow at the beginning of each semester.

TAs should check the equipment to make sure it is functional at the beginning of the semester before the lab begins and at the end of the semester to ensure that all equipment is in the lab and working properly.

General usage equipment is a pool of equipment stored at a central location (Room 1533 EH) for the benefit of all labs and research. Since there is a limited amount of this equipment, it will be **imperative** for all TAs to analyze their equipment needs for the entire semester and submit a request slip a week prior to the day the equipment is needed to Room 1533 EH. These requests will be honored on a first come-first served basis. There are some pieces of equipment that are in very high demand and will, therefore, have some tight restrictions placed on their prompt return.

**All common equipment checked out during the semester and not required the next semester and/or equipment where there is no physical security during the semester breaks must be returned to Room 1533 EH. Failure to do so may result in the withholding of transcripts or permission to re-register.**

Only TAs may sign out equipment for the lab. Do not send students. Plan ahead for the equipment that will be needed for the lab session. It has been observed many times that TAs will come to Room 1533 EH while the students are waiting in the lab in an attempt to check out needed lab equipment. They rarely get what they need in time, which reflects poorly on TA teaching methods. Plan ahead! Office hours are 8:30 a.m.-4:30 p.m., unless otherwise noted.

There is a pool of research equipment, generally more specialized, that may be used or available for use in an undergraduate teaching lab. To obtain this equipment a TA must contact the professor in charge of the research lab, and notify David Wirkes of the room number.

All equipment belonging to the ECE department is to stay within the confines of the ECE department. **A TA or faculty member may not loan or otherwise transfer equipment from one Room or building to another.** Once a piece of equipment is signed out, it will be the responsibility of the user to protect the equipment from damage and theft until it is properly returned. **In cases of negligence, he or she may be held financially responsible for the piece of equipment.**

There are small pieces of lab equipment that are relatively inexpensive and are not inventoried or otherwise identified as belonging to the lab. This includes patch cords, adapters, extensions cords, etc. There has been a high incidence of theft and breakage of these items in the past. It is the TAs responsibility to prevent abuse and misuse of the equipment so they are available for use during labs. It takes a long time to replace these items. Broken items will be repaired as time permits by the ECE Repair shop in 1536 EH; all items cannot be repaired immediately, so plan ahead.

## **PARTS**

The lab TA may sign out small electronic parts as needed for experiments. The TA must have authorization to sign out parts as well as equipment from Room 1533 EH. Parts signed out for lab use are not required to be returned, but should stay with the lab. It is extremely important to check and order parts far in advance of needing them. We do not carry all parts in stock and some orders could take up to 3 months to receive.

## REPAIRS

There are many times that equipment will need repair in normal lab use. The following information will advise the TA (or faculty member) on how to keep these repairs to a minimum and the proper steps to take to get the equipment repaired.

**The lab TA should test all equipment for proper operation prior to all scheduled labs.** This will alleviate the problem of sharing equipment in the event a lab group has no equipment to work with because a piece is in for repair. Most equipment takes at least a week to repair, because of the limited personnel available and the limited availability of parts. Some repairs take considerably longer. It is unlikely that there are spare pieces of equipment available for check-out. So, the key step in the repair process is to get the broken piece of equipment into the repair shop, Rm. 1536 EH.

## REPAIR STEPS

1. Before a piece of equipment is turned in for repair, be sure you personally observe the problem as described by the student. Many cases of "user error" have been noticed in the past to the embarrassment of the TA. Check the student's wiring, equipment set-up, settings, etc.
2. After you have observed that there is truly a test equipment problem, bring the equipment to room 1536 EH. Specifically Frank Bayer, the electronic Technician. Describe the problem to Frank. Make sure before you leave you have related your **Name/Lab, Date/Time, Nature of the Problem, and e-mail address**. If you are unable to meet with Frank (because it is a night lab for instance) e-mail Frank with all of the above information.
3. After the item is repaired, you will receive an e-mail message that the equipment is repaired. Please go to Room 1536 EH to retrieve the item and return it to the lab.

Please realize that equipment is repaired on a first-come - first-served basis. It may take a day, week or longer to repair the item. If you are in need of a replacement while it is being repaired, go to Room 1533 EH to check out a replacement (**if one is available**). Be sure to return the replacement after the repaired item is picked up. Remember that equipment is not routinely pulled from the lab to see if it is operational.

**IT IS YOUR RESPONSIBILITY, AS A TA, TO BRING ALL ITEMS NEEDING REPAIR TO ROOM 1536 EH AS SOON AS THE PROBLEM IS NOTED.**

Items may be under warranty for a specific period. If the warranty lapses, it could be very costly for the department to be repair. This is especially true with courses receiving new equipment.

## SPECIFIC RECOMMENDATIONS FOR PROPER USE OF LAB EQUIPMENT AND SAFETY GUIDELINES

The following is a list of specific recommendations for the proper use of lab equipment by TAs and students:

1. Understand the limitations of all the inputs and outputs of the equipment that you are using. Some equipment can be severely damaged by the connection of relatively low power signals to specialized inputs.

2. Do not allow any student to deface the equipment by writing on it with a pen or pencil. The students want to make tick marks on the face so that knob settings can be noted. These are hard to erase and accumulate to make the equipment look older and poorer than it really is.
3. Remind students that soda, food, or other beverages are not allowed in the lab where they might be spilled on the equipment.
4. For the sake of safety in the lab, be sure all equipment has a functional “third wire” ground. If a piece of equipment needs isolation from the safety ground system, use an isolation transformer. Do not remove or damage the third wire ground terminal of the line cord.
5. Neatness is imperative in a lab situation. Insist that you personally inspect for proper connections on all experiments before they are energized.
6. Be aware that some students will purposely sabotage equipment in an attempt to escape from doing the required lab assignments. Students have been observed forcing selector knobs past their normal stopping points.
7. **You must know where the 'main' breakers are for the outlets in your lab; know about any special power you may need in and how to control it; know where emergency safety items are stored, where the nearest phone is for emergencies and who to call for an emergency; know where the nearest fire extinguisher is and how to operate it. If someone is in contact with electricity, use the safety cane (located in each lab) to pull the person loose by placing cane around arm or neck. These canes are insulated for up to 12,000 volts of electricity. Above all, use caution to keep yourself and others safe.**
8. There is no horseplay in the labs. Be careful of loose clothing or jewelry near high power or rotating equipment. Report all accidents in the lab to the department office Room 2420 EH.
9. **Review the operation of all equipment at the end of the semester so that needed repairs can be done during the semester break. Check to make sure all equipment is in the lab at the end of the semester (lab inventory) and return all borrowed equipment, not required for the following semester, to Room 1533 EH.**

## COMPONENT PARTS POLICY

### 1. Parts Accounts

Parts may be withdrawn in any of the following four methods:

- By faculty and TAs to support ECE Teaching Labs
- Predetermined research or non-departmental accounts with established fund numbers and authorized users. No returns are allowed. Defective parts will be replaced.
- Purchased with WisCard debit card for which returns are not accepted nor cash refunds made. Defective parts will be replaced.
- Student Project Courses: Only designated project courses will receive returnable parts kits. Class rosters are to be provided by TA. The parts **are to be returned within 5 days of the university "last class date."** Only specific, designated parts will qualify for return. As a general rule, this will include lab fixtures, hand tools, and only certain components. No returns will be allowed on any damaged parts. **Return all parts at one time.**

2. **Listings of available component parts** are located on the computers in Room 1533 EH. Datasheets and component specifications are available in Room 1533 and from manufacturer websites.

### 3. Component parts may be requested:

- In person at Room 1533 EH from 8:30 AM - 4:15 PM Monday-Friday except legal holidays. Be sure to check the hours posted on the door for any exceptions.

#### **In all cases the following must be supplied:**

- Name and account (account may be the course & section number).
- Your student number
- The quantity and part being requested, using the part number given in the ECE Parts Catalog. It is the requestor's responsibility to verify that the requested part meets their needs (i.e. power rating, working voltage, etc.). Requests with only generic part descriptions (i.e. "by pass capacitor", or "10-ohm resistor") will not be accepted.
- List one item per line and WRITE LEGIBLY.

## HOW TO RETURN PARTS KITS FROM PROJECT COURSES

1. Return all parts at one time. Returnable course packs must be returned with all parts disassembled and neatly packed.
2. Your instructor will give you a receipt that must be signed by the shop personnel.
3. Although it remains your responsibility to clear your own account, some partners choose to return parts together. If you do so, shop personnel reserve the option as to where credit is given. You must resolve the difference with your partner. If you are returning parts for someone else, or another account, this must be clearly identified to receive credit.
4. Failure to clear your account within the period (5 days after the university "last class date") will result in the withholding of registration, transcript, and or grades. After 5 days, you will be billed for the amount owed.

## LABORATORY EMERGENCY INFORMATION – Sample Form

University of Wisconsin-Madison

Department	Room	Date
Faculty/Supervisor Responsible for Lab	Office Phone	Home Phone
Alternate Contact	Office Phone	Home Phone
Alternate Contact	Office Phone	Home Phone
Emergency Coordinator	Office Phone	Home Phone
[ ] Building or [ ] Dept/School		
<p><b>IN CASE OF EMERGENCY</b>, tell your supervisor and call <b>911</b>.            For <b>fire</b>, pull alarm; evacuate building; stay outside to meet with Fire Department Official.            For <b>hazardous vapors or gases</b>, inform others to evacuate the area; close doors; dial <b>911</b>.            For <b>gases or vapors spreading to other areas</b>, pull fire alarm; evacuate the building; <b>WHEN IN DOUBT, GET OUT</b>.            For <b>injuries</b>, call <b>911</b> for ambulance.            For <b>poison</b> and other chemical toxicity information, call the <b>Poison Control Center: 262-3702</b>            For simple <b>spills</b>, call <b>Safety Dept. (262-8769)</b> for cleanup advice.</p>		
<b>UW-Madison Emergency Coordinator:</b>	<b>Safety Department</b>	<b>Ambulance/Fire/Police/Spill: 911</b>
<b>University Hospital Emergency Room:</b>	<b>262-2398</b>	<b>UW Hospital Poison Control Center: 262-3702</b>
<b>LOCATION</b>		<b>LOCATION</b>
<b>Nearest Fire Extinguisher:</b>		<b>Nearest Fire Alarm:</b>
<b>Nearest Spill Control Material:</b>		<b>Nearest Safety Shower:</b>

BIOHAZARDS	LAB LOCATION	CHEMICALS	LAB LOCATION	RADIATION	LAB LOCATION
Biosafety Level 1 <input type="checkbox"/> Low		<input type="checkbox"/> Flammable Liquid		<input type="checkbox"/> Laser	
Biosafety Level 2 <input type="checkbox"/>		<input type="checkbox"/> Air/Water Reactive		<input type="checkbox"/> Irradiator	
Biosafety Level 3 <input type="checkbox"/>		<input type="checkbox"/> Toxics/Carcinogens		<input type="checkbox"/> Rad. Sealed Source	
Biosafety Level 4 <input type="checkbox"/> High		<input type="checkbox"/> Conc. Acids/Bases		<input type="checkbox"/> Radioactive Waste	
Pathogens:		<input type="checkbox"/> Gas Cylinders		<input type="checkbox"/> Rad. Materials	
<input type="checkbox"/> Human		<input type="checkbox"/> Strong Oxidizers		<input type="checkbox"/> Other: _____	
<input type="checkbox"/> Animal		<input type="checkbox"/> Waste Solvents			
<input type="checkbox"/> Toxins		<input type="checkbox"/> Other: _____			
<input type="checkbox"/> Other: _____		<input type="checkbox"/> Other: _____			

Complete and post next to your laboratory door, with a second copy next to your phone. UW-Madison Safety Department 262-8769 (October 1993)

Original blue form can be obtained from 2420 Engineering Hall.

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