

ECE Lab Teaching Assistant Guide

2009-2010 Edition

Department of Electrical & Computer Engineering



Contents

Introduction	1
Expectations and Requirements	1
Office Hours.....	1
Attendance	1
Preparation.....	1
During the Lab	2
Grading.....	2
Diversity and Conflicts	3
Harassment Policy.....	3
Contact Information.....	4
Course Instructor.....	4
Teaching Assistant Coordinator	4
Lab Coordinator.....	4
Scheduling Coordinator.....	4
Executive Assistant (temporary)	4
ECE Instructional Labs	5
FAB 60-01 Tektronix Circuit Design & Testing Lab (“Tektronix Lab”).....	5
FAB 60-03 Storage Room	5
FAB 60-14 Digital Signal Processing Lab (“DSP Lab”)	5
Lab Safety.....	6
Telephone, Fire Extinguisher, First Aid Kit	6
Security.....	6
Fire Alarms	6
Major Equipment Failures.....	6
Computer Accounts	7
TA Orientation & Training Session	7
ECE Tool Box, TA Training Kit, Spare Parts Kit.....	7
Loaning Equipment to Students.....	7
Topics to Discuss With Students	8
Lab Policies and Rules	8
General Information.....	8
Lab Training & Tutorials for Students	9
ECE 201 and 241L	9
Quick Reference.....	10
Department Location	10
Staff	10
Web Sites.....	10
Lab Courses	11
Instructional Lab Rooms.....	11
Computer Lab Rooms.....	11
Miscellaneous Rooms.....	11
Lab Course Requirements Table	12

Introduction

Congratulations on being selected as a lab teaching assistant (TA) for the Department of Electrical and Computer Engineering at PSU! We hope that you will find the position to be a rewarding experience. This guide will provide you with general information and outline your duties and responsibilities as a TA.

Expectations and Requirements

Your role as a lab teaching assistant is very important, since you will be working directly with students. The technical skills, attitude, and dedication you exhibit in the lab will influence how well students are able to learn practical electrical engineering concepts. To meet our goals for maintaining high standards in teaching, the ECE department has developed a set of requirements that it expects all TAs to follow.

If a teaching assistant is found to be in violation of one or more of the following expectations or duties, he or she can be dismissed from the position and the assignment terminated.

Office Hours

- Have office hours (1 to 2 hours per week) that are convenient for the majority of the students.
- Meet with students either in the lab or in your office.

Attendance

- Be present for all lab sessions and office hours, including the first and last week of classes and the finals week.
- Arrive on time for the start of the lab session or office hours.
- Do not leave early if your students are still present and working.
- Contact the instructor immediately if you are unable to attend due to sickness or an emergency.
- Inform the instructor ahead of time if you need to request a non-emergency absence.

Preparation

- Perform each lab assignment yourself *before* it is done by the students. TAs may be asked to submit a report to the course instructor or TA Coordinator for verification.
- Prepare a short presentation (typically 10 to 15 minutes) to discuss at the beginning of each lab session. It should cover these topics:
 - Purpose of the lab assignment and the basic theory behind it
 - An overview of the required procedures, measurements, and equipment
 - Potential problems or pitfalls to avoid
 - What you expect the students to submit in their lab reports

During the Lab

- Maintain a professional attitude and appearance.
- Be proactive and circulate among the student groups in the lab. In particular, look for people who are struggling with the assignment and who may benefit from your assistance. It is not enough for you to just sit and wait for students to come and ask you questions!
- Try your best to help the students gain a better understanding of the lecture and lab material.
- Promote safe working habits to students when operating electrical or mechanical equipment.
- Report equipment failures or other lab issues to the Lab Coordinator as soon as possible.

Grading

As the TA, you are expected to grade lab reports. In addition, you may be asked to grade pre-lab assignments and quizzes.

Note: Many instructors use either Blackboard or Moodle software to manage their course content and student grades. The course instructor may ask you to learn and use this software.

- Meet with the course instructor to discuss the exact grading criteria you need to follow.
- Discuss with the course instructor deadlines for report submission by students and grading of those. Follow the agreed deadlines.
- Be fair, impartial, and consistent when grading student work.
- Complete your grading of lab reports within a week or sooner.
- Provide feedback so that students know how well they are doing.
- Keep all grades and personal student information confidential. Do not disclose or discuss student grades with non-authorized people.
- Look for possible cases of academic dishonesty. **If you suspect cheating, do not confront the student yourself. Instead, immediately present your evidence to the instructor.**
- If a conflict arises over a student's lab grade that you cannot resolve on your own, then contact the course instructor.
- Do not perform grading during a lab session. Save it for office hours or some other time.
- Do not make special arrangements with an individual or group of students for deadline extensions or extra credit work. Instead, tell the student to make the request directly to the instructor.

Diversity and Conflicts

One of the advantages of a large university like PSU is the great diversity in ideas, beliefs, and backgrounds among the students and teaching staff. However, this can occasionally lead to misunderstandings that can adversely affect the learning environment.

As both a representative of the university and an authority figure in the lab, you have the responsibility to act professionally when dealing with people who may have attitudes that differ from your own or others.

Knowing how to handle difficult situations properly is a key part of the teaching experience.

- Be aware of cultural differences.
- For minor conflicts, try to come to an acceptable resolution through reasonable discussion.
- Sometimes it is enough to “agree to disagree” to prevent unnecessary escalation of a problem.
- If the conflict is not readily resolvable and becomes disruptive to the lab, contact the course instructor or ECE department staff to express your concerns.
- Cheating is not a “cultural difference” that can be tolerated and if you have any suspicions about student’s work or behavior you should contact the course instructor immediately. Do not bring this up with students.

Harassment Policy

The ECE department follows PSU guidelines regarding harassment on campus:

Any harassment, violence, or retaliation by students, faculty, administrators, or staff is strictly prohibited and will not be tolerated.

PSU Affirmative Action & Equal Opportunity web site:

<http://www.afm.pdx.edu/>

To view the PSU Professional Standards Policy:

<http://www.afm.pdx.edu/ProfessionalStandardsPolicy.php>

To view the PSU Policy on Sexual Harassment:

<http://www.afm.pdx.edu/SHPOLCY.html>

- As a teaching assistant, it is acceptable to interact with students in a friendly manner. However, be careful about becoming personally involved with students.
- Always conduct yourself professionally. Do not put yourself in a position where you could be accused of inappropriate behavior or harassment.
- If you see inappropriate behavior among students in your lab session, then firmly remind them of PSU’s policy on harassment. Inform the instructor if the harassment continues.
- If you feel you are being harassed by others and cannot resolve the situation on your own, then report the incident to the course instructor, ECE department staff, or PSU administration.

Contact Information

Course Instructor

- All policies and procedures related to your lab course are established by the course instructor. The instructor has the final word on all course policies.
- If you have questions related specifically to the course itself, please contact the instructor.

Teaching Assistant Coordinator

- For questions related to general teaching assistant policy, contact:

Name: Dr. Branimir Pejcinovic

Office: FAB 160-08

E-mail: brano@ece.pdx.edu

Lab Coordinator

- If you have questions about the lab equipment, or need access to special components, or require TA training, or wish to report faulty equipment, then contact:

Name: Phillip Wong

Office: FAB 60-02

E-mail: ecelab@ece.pdx.edu

Web: <http://www.ece.pdx.edu/~ecelab>

Scheduling Coordinator

- If you need an office or keys, then contact:

Name: Amy Jolstead

Office: FAB 160-07

E-mail: amyj@ece.pdx.edu

Executive Assistant (temporary)

- For questions about your employment or pay issues, contact:

Name: Dorota Zukowska

Office: FAB L160-00

E-mail: zukowska@ece.pdx.edu

ECE Instructional Labs

FAB 60-01 Tektronix Circuit Design & Testing Lab (“Tektronix Lab”)

- FAB 60-01 is the lab room for the ECE 201-203, 241L, 271L, 301-303, 332L, 372L courses.
- The lab contains:
 - 29 test benches (26 w/PC + instruments, 3 w/PC only)
 - 1 presentation station (PC + LCD projector)
 - Soldering and rework stations
- The Tektronix Lab has a whiteboard and dry-erase markers for non-electronic presentations.
- For electronic presentations (e.g., PowerPoint slides), use the LCD projector.
- The lab is usually open 24/7. However, students still need a valid card key to enter the building after normal business hours. This lab (and others) may soon be equipped with additional security measures such as swipe card access and security camera(s).

FAB 60-03 Storage Room

- The locked storage room inside the Tektronix Lab contains equipment required for the ECE 271L, 311L, and 332L courses.
- If you need access to the storage room, talk to the course instructor first. If the instructor agrees to provide authorization, then talk to the ECE Scheduling Coordinator to order a key.

FAB 60-14 Digital Signal Processing Lab (“DSP Lab”)

- FAB 60-14 is the lab room for the ECE 465 course.
- The lab contains:
 - 6 test benches (PC + instruments + DSP board)
- The lab is usually open Monday through Thursday from 7:30 AM to 4:00 PM. It is locked at all other times.

Guidelines for Sharing the Lab

- Test benches and equipment in the lab are reserved for the exclusive use of the scheduled section. If the lab is full, you can ask students who do not belong to the scheduled section to move or leave. Note: It is common for lab sections to overlap in time.

Lab Safety

Learning basic safety procedures is an important part of your job as a teaching assistant. Please take the time to familiarize yourself with the rules.

Telephone, Fire Extinguisher, First Aid Kit

- There is a campus telephone located on the wall outside FAB 60-02 (Lab Coordinator's office).
- A fire extinguisher is located on the wall opposite the west entrance to FAB 60-01 (Tektronix Lab).
- A small first aid kit is available in the Lab Coordinator's office.
- The building's security and help desk is located in the upstairs lobby on the plaza level.

Security

- Do not leave valuable items (wallets, purses, keys, computers, personal electronics) unattended in the lab. If you need to leave for an extended period of time, then take your valuables with you.
- Report any suspicious sound, person, or activity to campus security. Do not attempt to confront the person yourself.
- The Public Safety Office phone number is: 503-725-4404 (full) or 5-4404 (campus phones only)

Fire Alarms

In case the fire alarm goes off (flashing lights, very loud horn), perform these actions:

1. Tell all students to stop what they are doing and evacuate the lab.
2. Go to *one* of the following exits to escape the building:
 - a. The staircase in the lower level lobby that leads up to the plaza level
 - b. The lower level corridor that connects directly to the Engineering Building
 - c. The north entrance of FAB that goes out to the streetcar tracks
3. Close the lab doors when you leave.

Things to remember:

1. Do not turn off the room lights.
2. Do not use the elevators.
3. Do not ignore the fire alarm!

Note: You should inform students that they should leave if the fire alarm sounds, but the decision to actually leave is each student's personal responsibility.

Major Equipment Failures

- If you see or smell smoke emanating from the lab equipment or computers, tell students to move away and attempt to turn off the power, *but only if it is safe to do so*.
- If an uncontrollable fire breaks out, tell students to evacuate and notify campus security.
- Report damaged equipment to the Lab Coordinator immediately.

Computer Accounts

- The computers in most ECE labs require an ECE Windows account for access. If you do not already have an ECE Windows account, apply for one at *theCAT* front desk (FAB 60-06).
- The web-based Blackboard grading system requires TAs to have a PSU Odin account. If you do not already have an Odin account, apply for one online (<http://www.account.pdx.edu>).

TA Orientation & Training Session

- New lab TAs who have never taught a previous lab course for the PSU ECE department are expected to meet with the Lab Coordinator for a short orientation and training session.
- The orientation will include a tour of the lab and discussion of procedures and policies.
- Training will include hands-on tutorials on how to use the lab instruments, computers, and software.

ECE Tool Box, TA Training Kit, Spare Parts Kit

- The Lab Coordinator may issue you up to three types of equipment for the term:
 - ECE Toolbox – This contains tools, cables, and general parts for prototyping circuits.
 - TA Training Kit – These are all the specific parts needed to perform the lab experiments. This kit is for the TA to construct and learn the lab experiments before teaching the students.
 - Spare Parts Kit – You can give students a replacement part from this kit if they damage their own part. However, first ask the student to buy a new one from the IEEE Student Store. If the store is closed, then give the student a part from your Spare Parts Kit.
- Return the ECE Toolbox, TA Training Kit, and Spare Parts Kit back to the Lab Coordinator at the end of the term. You **must** return these items for inspection, even if you are assigned to teach a lab course for the following term. Failure to do so will be reported to the TA Coordinator.
- The returned items should be in the same condition as you received them. Do not cut leads off of parts, mix up the parts, or throw away the packaging. Remember that future TAs will need to use this equipment again.

Loaning Equipment to Students

- All equipment loaned out to students from the FAB 60-03 storage room (e.g., cables or motor units) **must** be returned before the end of the lab session.
- It is your responsibility to verify that loaned out equipment is returned.
- If a student wishes to check out equipment outside of the normal lab period, then tell the student to talk to the Lab Coordinator.

Topics to Discuss With Students

Lab Policies and Rules

Teaching assistants for ECE 201, 241L, and 301 are expected to state the following policies and rules to their students during the first lab session of the term:

1. Do not bring food or drinks into the lab. Keep all such items outside the lab. Violations of this rule may lead to suspension of computer accounts.
2. Keep the lab clean and neat by disposing of litter and waste paper from your work area.
3. Return any checked out equipment back to the TA by the end of the lab session.
4. Turn off all instruments after you are done working.
5. Leave the computer on (they will automatically hibernate if left unattended).
6. Leave the computer case, monitor, keyboard, and mouse in their standard positions.
7. Do not rearrange, remove, or unplug computer and instrument cables.
8. Do not move equipment from one test bench to another bench.

Note: Teaching assistants for other lab courses should also remind students of Rules #1 and #2.

General Information

Teaching assistants should mention the following:

- Students should report all lab equipment problems to either the TA or to the Lab Coordinator.
- Students should check that they did not accidentally leave behind their USB flash drive or other valuable personal items. The Lab Coordinator keeps an inventory of lost or unclaimed items.
- The parts kit (if needed for the course) can be purchased from the PSU Bookstore.
- The ECE Tool Box can be purchased from either the PSU Bookstore or the IEEE student store.
- The IEEE student store (FAB 60-13) has a large inventory of electronic parts available for sale. The store is staffed by volunteers and has limited operating hours.

Note: If the IEEE student store is closed, the Lab Coordinator will **not** open it for students.

Lab Training & Tutorials for Students

ECE 201 and 241L

During the first lab session of the term, teaching assistants for ECE 201 and 241L are expected to provide a tutorial on lab hardware, measurement procedures, and safety issues. The topics to be covered include:

- Protoboard (breadboard) – Show how the rows and columns are connected internally
- Digital multimeter – Demonstrate how to measure voltage, current, resistance
- DC power supply – Explain how to set voltage values and current limits for the output terminals
- Arbitrary function generator – Show how to configure various waveforms (frequency, amplitude)
- Oscilloscope – Cover very briefly (e.g., connect oscilloscope to function generator)
- ECE Tool Box – Show contents of tool box and discuss the purpose of each part

Inform the students that the Lab Coordinator's web site (www.ece.pdx.edu/~ecelab) has downloadable operating guides for each lab instrument. More comprehensive reference guides are available on each manufacturer's technical support web site.

Quick Reference

Department Location

The ECE department occupies space on the plaza-level and the lower-level floors of the Fourth Avenue Building, also known as "FAB". The main ECE office is located in Suite 160.

The department's mailing address is:

ECE Department
Portland State University
1900 SW 4th AVE STE 160
Portland, OR 97201

Staff

- **Dorota Zukowska** – Temporary Executive Assistant
Phone: 503-725-2828 E-mail: zukowska@ece.pdx.edu
- **Amy Jolstead** – Scheduling Coordinator
Phone: 503-725-3821 E-mail: amyj@ece.pdx.edu
- **Kelley Gardiner** – Assistant for Graduate Affairs
Phone: 503-725-3002 E-mail: [kelleyg@ece.pdx.edu](mailto:kelle yg@ece.pdx.edu)
- **Zhivko "Jay" Penev** – Assistant for Undergraduate Affairs
Phone: 503-725-3806 E-mail: zpenev@ece.pdx.edu
- **Dr. Branimir Pejcinovic** – Teaching Assistant Coordinator
Phone: 503-725-5416 E-mail: brano@ece.pdx.edu
- **Dr. Paul Van Halen** – Faculty Lab Coordinator
Phone: 503-725-5395 E-mail: vanhalen@ece.pdx.edu
- **Phillip Wong** – Lab Coordinator
Phone: 503-725-5413 E-mail: ecelab@ece.pdx.edu

Web Sites

- ECE Department: <http://www.ece.pdx.edu>
- Lab Coordinator: <http://www.ece.pdx.edu/~ecelab>
- theCAT Support: <http://www.cat.pdx.edu>
- IEEE Chapter: <http://www.ieee.pdx.edu>

Lab Courses

- ECE 101 – Unofficial lab for ECE 101 Exploring ECE
- ECE 201, 202, 203 – Electrical Engineering Laboratory I, II, III
- ECE 241L – Lab for ECE 241 Introduction to Electrical Engineering (for ME majors)
- ECE 271L – Lab for ECE 271 Digital Systems
- ECE 301, 302, 303 – Electrical Engineering Laboratory IV, V, VI
- ECE 332L – Lab for ECE 322 Engineering Electromagnetics II
- ECE 372L – Lab for ECE 372 Microprocessor Interfacing and Embedded Systems
- ECE 465L – Unofficial lab for ECE 465 Digital Signal Processing

Instructional Lab Rooms

- FAB 60-01 – Tektronix Circuit Design and Testing Lab (“Tektronix Lab”)
- FAB 60-03 – Tektronix Lab Storage Room
- FAB 60-14 – Digital Signal Processing Lab (“DSP Lab”)
- FAB 70-08 – Interim ECE Capstone Lab

Computer Lab Rooms

- FAB 55-17 – Maseeh College Intel Lab (PC computers)
- FAB 60-01 – Tektronix Circuit Design and Test Lab (PC computers)
- FAB 60-19 – ECE VLSI Lab (Sun Unix workstations)
- EB 325 – Maseeh College EB Intel Lab (PC computers)

Miscellaneous Rooms

- FAB 100-01 – TA Office (for TAs not assigned to private graduate student offices)
- FAB 60-06 – theCAT Front Desk (computer accounts, computer tech support)
- FAB 60-13 – IEEE Student Store (electronic parts for sale)
- Portland State University Bookstore (ECE Toolboxes, parts kits for sale)

Lab Course Requirements Table

Course Number	FAB Lab Room	Parts Kit ¹ Required?	Access needed ² to FAB 60-03?	Notes
199L	60-01	No	Yes	DS: Cables & parts
201	60-01	Yes	No	DS: Test boxes
202	60-01	No	No	Project based – no specific parts kit
203	60-01	No	No	Project based – no specific parts kit
241	60-01	Yes	No	Same parts kit as ECE 201
301	60-01	Yes	No	
302	60-01	Yes	No	
303	60-01	Yes	No	
332L	60-01	No	Yes	DS: MW source, antenna, waveguide
372L	60-01	No	No	DS: Microcontroller board, motor unit
465L	60-14	No	No	DS: DSP board

Notes:

1. This refers to a parts kit that students would need to purchase from the PSU Bookstore.
2. This is the storage room inside the Tektronix Lab. If access is needed, then a key must be ordered.
3. "DS" means that the ECE department supplies these parts or components for students to use during the lab session.