TEACHING ASSISTANT MANUAL*

New Mexico State University

Klipsch School of Electrical and Computer Engineering

*This manual was adapted from the *Teaching Assistant Manual*, Department of Physics, NMSU.

To the graduate teaching assistant:

One of the principal goals of the department is to provide excellent instruction in electrical engineering. Our graduate teaching assistants (TAs) play a significant role in our progress toward this goal.

Our students learn in many different ways, including

- Traditional delivery (lecture)
- Demonstrations
- Homework assignments
- Supplemental instruction (recitation)
- Laboratory
- One-on-one tutoring
- Problem-solving in small groups (moderated or independent)

TAs are a critical part of our instruction process. They assist in several ways, especially as

- Lab instructors
- Graders for homework problems
- Lecturers in introductory courses
- Lab or demonstration setup
- Learning assistants

TAs carry much of the grading and laboratory teaching load for the department. However, the TA assignment can also contribute substantially to the professional development of a graduate student. TAs learn instructional techniques, develop a deep understanding of the material, and build leadership behaviors such as communication, teamwork, ethics, planning and milestones, and working with people in an interdisciplinary environment.

The laboratory is an important part of undergraduate instruction in engineering. It is in the laboratory that students really begin to understand what their lecture professor is trying to tell them. The laboratory experience can help students develop not only measurement skills but also analytical and communication skills. The laboratory TA plays one of the most important roles in this process.

This handbook has been developed to assist you in the performance of your TA duties. In it you will find descriptions of TA duties, specific information about training and orientation, and other pertinent information about departmental organizations.

Prof. Phillip De Leon
Associate Department Head for Graduate Studies

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I. General Information about your Teaching Assistantship

A. Appointment

Your graduate teaching assistantship appointment is usually made for a single semester. For outstanding students (with a BSEE or MSEE) entering the Ph.D. program, the department may award a two-year (four semester) teaching assistantship upon request. In this special case, the student must meet one of the following: BSEE with a minimum 3.75 GPA (no MSEE) or MSEE (thesis) with a minimum 3.5 GPA.

The amount of your assistantship is stated in your appointment letter. Personnel forms are to be completed immediately upon your arrival to the campus. Ms. Annette Benavidez (TB 106) will provide you with information about payroll and tax forms. You are paid on a semi-monthly basis (nine paychecks per semester) and you can pick up your paychecks from Ms. Benavidez or Ms. McIntyre in TB106. There is a delay of two weeks for each check, that is, your first check will not arrive until one month after you start. You may also elect to have your paychecks directly deposited into your bank or credit union; direct deposit arrangements can be made at the Payroll Office in Hadley Hall.

Teaching duties vary and are assigned each semester by the Associate Department Head for Graduate Studies. Teaching assistants are required to attend all orientation and training meetings designated for TAs. For more information on your appointment, please see

http://ece.nmsu.edu/Assistantships.htm

B. Renewal

The assistantship is renewable, dependent upon performance, progress in your graduate program and availability of funds. TA appointments are examined several weeks prior to the semester (fall or spring) and performance ratings are taken into account for renewal decisions. An important factor is the student evaluation score given to the TA for the previous semester. An average score below 2.75 (out of 4.0) may result in non-renewal of a teaching assistantship or place the TA in a probation situation for the next semester. Two consecutive semesters of evaluation scores below 2.75 will lead to dismissal.

In addition to maintaining a minimum of 3.25 GPA, a TA is expected to make progress towards the doctorate:

1. For Ph.D. students with a MSEE degree, TAs are expected to
   a. have passed the Ph.D. qualifying exam by the 3rd semester
   b. have passed the Ph.D. comprehensive exam by the 6th semester
   c. have passed the dissertation defense by the 8th semester

2. For Ph.D. students without a MSEE degree, TAs are expected to
   a. have passed the Ph.D. qualifying exam by the 6th semester
   b. have passed the Ph.D. comprehensive exam by the 8th semester
   c. have passed the dissertation defense by the 10th semester

In no case shall any Ph.D. student be supported on a TA for more than 8 semesters total unless an exception has been made by the Department Head. Advanced students (who have completed all or most of their coursework) are usually expected to seek a research assistantship to support them during the research phase of their graduate studies.

For students working on their MSEE (thesis), teaching assistantships are limited to 2 semesters; if the

student continues into the Ph.D. program, their time limit is reset.

C. Summer Employment

The Klipsch School does not usually offer summer courses, so TA assignments are generally not available in the summer. All students are encouraged to seek research assistantship support during the summer. Summer research assistantships are primarily sponsored by research groups.

D. Mail and Local Address

Each TA must have a local contact address, an NMSU e-mail address, and a phone number on file in the ECE Office. Office space assignments are made by the department office. Please do not switch your desk space without approval from the department office. Free e-mail accounts are available to all NMSU students; go to http://accounts.nmsu.edu/. Do not use non-NMSU email addresses. PLEASE CHECK YOUR E-MAIL DAILY. This is the primary way we can get important messages to you.

II. Being a Teaching Assistant in the Klipsch School

A. Selection of TAs

The TAs in the Klipsch School are generally selected from the pool of ECE graduate students. Both new and current ECE graduate students can apply. In addition, prior to a new semester, faculty members submit candidate names to the Associate Department Head. These name-requested candidates usually have performed well as a TA previously or have the background to teach certain laboratory sections. Faculty members may also submit names of incoming students with exemplary academic records. Several TA positions are reserved for incoming graduate students with excellent academic records but who are not name-requested. Candidates pursuing a Ph.D. are given preference to M.S. students. Few graduate students remain TAs during their entire graduate careers, since the TA funds are limited. All new students should find a Ph.D. research advisor, who will support their research with a research assistantship.

B. TA Assignments and Duties

The primary assignments involve laboratory instruction, grading and tutoring. The detailed duties are determined by the instructor of the course to which you are assigned. The course instructor serves as your immediate supervisor. TA assignments typically range from 10 to 20 hours per week; the remainder of your time is for your graduate studies. Your assignment is made at the beginning of each semester by the Associate Department Head. You should contact your assigned supervisor as soon as your assignment is made. University and departmental orientations will be available. The faculty and staff of the department can provide various kinds of assistance and information to you as you begin your duties.

It is important that all our TAs act professionally and treat their students with respect. It is best to keep the relationship on a highly professional level. Conflicts of interest (e.g., a close personal relationship with an ECE student) should be disclosed to the Associate Department Head before course assignments are made or as soon as possible thereafter. NMSU has strict policies regarding use of computers, ethical conduct, smoking, alcohol and drug use, accommodation of disabilities, sexual harassment, racism and discrimination, which lead to disciplinary action in the case of misconduct. If in doubt, ask your supervisor, the Associate Department Head or Department Head.

TAs are expected to be present on-campus at the start of each semester that they are hired as a TA. It is suggested that TAs arrive early to meet with the course instructor so that you will be able to prepare for the first lab. Please discuss with your course instructor any additional duties you may have during final exam week that require your on-campus presence.

Outstanding performance in your teaching and other assigned duties is expected. Accurate and timely record-keeping is important. One responsibility for any teacher is to be on time for every class and meeting. Should you find it necessary to miss a laboratory because of illnesses or other reason, it is your responsibility to make arrangements to have your class covered by another capable person. Once you have made these arrangements, you must inform the course instructor in charge and a department secretary about the changes. If you are unable to make arrangements for coverage, it is imperative that you inform the course instructor for your class or a department secretary if you cannot reach the instructor. It is a good idea to make arrangements at the beginning of the semester with another TA who would be able to fill in for you on short notice.

Tardiness to labs creates an especially serious problem. If you know you will be a few minutes late, please call the departmental office (646-3115) so that your classroom may be opened and the students can be informed about your late arrival.

C. Undergraduate Courses

Undergraduate courses that typically require grading or laboratory TA support include:

EE 161 – Problem Solving (with lab)
EE 162 – Digital Circuit Design (with lab)
EE 201 – Networks I (circuits for non-majors)
EE 210 – Engineering Analysis I (with lab)
EE 260 – Embedded Systems (with Lab)
EE280 – DC/AC Circuits (with Lab)
EE 310 – Engineering Analysis II
EE 312 – Signals & Systems I
EE314 – Signals & Systems II (with lab)
EE 351 – Applied Electromagnetics (with lab)
EE 380 – Electronics I (with lab)
EE 391 – Introduction to Electrical Power Engineering (with lab)
EE 460 – Satellite Design

Certain large graduate courses and graduate courses cross-listed with undergraduate courses may also use TA grading or teaching laboratory support.

D. Orientation and Training Program

Orientation is primarily done by the instructor for the course that involves the TA. Those working in teaching laboratories receive orientation from the course instructor and are strongly encouraged to attend weekly planning meetings with the instructor. Graders receive instruction from the course instructor. All TA's must also attend the NMSU graduate student orientation in August. In addition foreign students must pass an English exam before they can serve as a TA.

E. Faculty and Staff Assistance

1. *Faculty*. Each course you are assigned will have a faculty member designated as the instructor, who will be your direct supervisor. Your supervisor maintains an interest in not only your academic success, but also your success as a TA. You will meet with this faculty member frequently and you should go to this faculty member when questions or problems arise. Suggestions and feedback are encouraged. With open lines of communication between faculty and TAs, undergraduate students receive better instruction.

For TAs in a teaching laboratory, it is strongly encouraged that the TA and the supervisor meet weekly to discuss the upcoming lab activity and run through the setup if necessary.

2. *Support Personnel*
The Associate Department Head for Graduate Studies serves as the manager of graduate teaching assistants. General questions and concerns may be directed to him or her, although it is best to speak first with your course instructor.

The Department Secretaries in Thomas and Brown TB 106 can provide help with reproduction of teaching material. You can also ask them about your paychecks or the hiring process.

Mrs. Annette Benevidez in TB106 is the department's financial manager. She can often answer questions on financial issues.

Mr. Bill Smith provides support of instructional computers.

III. Guidelines for Laboratory Instruction

A. General

The laboratory is a critical part of undergraduate instruction in electrical engineering. Laboratory practice helps students develop measurement and communication skills, as well as an improved understanding of engineering. Best results are obtained if the lab is well designed, proper instruction is provided, and thoughtful evaluation of the student's work is given.

The laboratory is one of the few one-on-one contacts that undergraduate students have with a college instructor. The direct student-teacher interaction can be one of the most rewarding experiences of college life. The attitude and skill of the instructor affect the quality of the laboratory instruction more than anything else. Students may overlook equipment that isn't working properly, but they won't overlook the ill-prepared teacher or the teacher with a negative attitude.

B. Lab Overview

Laboratory sections generally meet once a week for 2-½ hours during the fall and spring terms. You should receive a copy of the lab manual and the hours of the lab sections for which you will be responsible from the course instructor. The lab manuals may be available to the students on-line, but all students must have a copy of the lab manual or have access to the manual - check for this at the first lab period. You should see that they have a copy of the schedule of experiments to be done. The important aspects of lab instruction should be given to the students in the form of a written syllabus by the course instructor. This should include information on grading, absence policies, make-up policies, final exams, weeks when lab is not scheduled because of holidays, and the lab rooms where the students will meet. The TA should check with the students in the first lab period to make sure they understand the lab schedule and policies.

C. TA Responsibilities

Before the laboratory begins

- Perform the entire lab experiment yourself if you haven't done it before. Make notes on problems you encounter and inform your students of them (they will appreciate the fact that you have taken the time to do the lab as outlined in the lab manual).

- Prepare a lesson plan for the lab class. Good lesson plans will have introductory remarks, notes about particular physical concept being examined, and reminders about safety and special features of lab apparatus. It may be appropriate to cover a few interesting points about the "everyday" aspects of the concepts illustrated by the lab.
- Review with the students the evaluation scheme for grading the lab reports, the time allowed for their completion, and turn-in procedures. Grading schemes should be discussed with the supervisor before presenting them to the students so there will be no misunderstandings between the instructor, TA and the students.
- Arrive at the lab a few minutes early to check out the apparatus and to let students into the room. This will give you and the students a chance to get organized before beginning the lab period.

During the laboratory instruction period
- Begin the lab on time. Start with a well-prepared description of the experiment to done.
- Interact with the students.
- Circulate among the work groups. Become aware of what is going on. If problems with the apparatus occur during lab, seek assistance from the course instructor

After the laboratory
- Report inoperative apparatus to the course instructor promptly. Be specific about the problems.
- Grade reports before the NEXT laboratory meeting.
- When leaving the lab room, check to see that the lab is in good order for the next lab (this includes cleaning the board).
- Check to see that no laboratory equipment is missing.

D. Laboratory Report Format

Many laboratories require lab reports. The format is specified by the faculty member in charge of the lab, but the essential elements of a lab report typically include:

Title of Experiment
List of Lab Partners
Objectives
Theory
Experimental procedure
Data collected
Analysis of data
Results
Conclusions

Some of these may be combined or presented in special ways (for example, data and analysis in one single table; or results in the form of a graph).

The report is not supposed to be primarily a writing exercise, although it is expected that good English usage will be followed, with correct spelling, complete sentences, good grammar, and conciseness. Each report should be completely identified with the student's name, course, section, and experiment title. The first part may be an abstract (a summary of what was done and the final results), which probably should be the last thing written. All data must be identified with correct units, and the correct number of significant figures must be used. The results should be compared with the expected values, when possible, and error estimates on the data should be made.

E. Reporting Laboratory Grades

It is your responsibility to grade each week's lab reports. Some course instructors require a certain standard for the grade assignments in order to insure uniformity among the different sections. Check with the course instructor at the beginning of the semester so that you can better instruct your students on the system you will follow in grading the lab reports. Final grades may be assigned by you alone, by you with the supervisor's concurrence, or by the supervisor. Again check early for the policy you should follow. Be sure the students are given the rules for grading at the start of the course.

F. Final Exam

In some laboratories a final exam is given. The course instructor will give you the instructions for this. At the start of the semester you should tell the students the rules for the final exam and its weight in the final grade.

G. Laboratory Manual

At the end of the semester it may be necessary to return your copy of the lab manual to the course instructor.

IV. Grading Assignments

Some TAs will be given assignments to grade homework in electrical engineering courses instead of, or in addition to, teaching labs. Grading assignments are also made at the beginning of each semester. The course instructor to whom you are assigned may have specific requests related to the grading policy that you will need to fulfill. It is the responsibility of the TA to discuss with the course instructor the specific grading instructions. A few general suggestions about grading are as follows:

- Treat the student with respect. Do not write comments such as "you fudged here" or "stupid mistake."
- Emphasize the proper use of units, labeling of axes in graphs, and careful drawing of diagrams.
- Emphasize the need to check answers to problems for reasonableness. That is, the student should show that dimensions and units are correct; that limiting cases for which the answer is obvious are correctly given by the student's solution, etc. This implies an emphasis on algebra rather than numerical plug-in during the working of problems.
- The student should always show his work. A simple statement of the numerical answer to a problem should be given little, if any, credit.
- The student should always know the basis of the grade you give.

V. Fulfilling Your Duties

As a TA you are a valued part of the instructional staff of the Klipsch School. Your performance reflects not only on you as an individual, but also on the department as a whole. The faculty views you as a colleague in our departmental effort to provide the best possible instruction to our students. The faculty also does not want you to be overworked because your primary reason for being here is to obtain an advanced degree. You are assigned a certain number of hours per week for each of your assignments, and the time you spend on each of them should be consistent with that assignment.

A. Failure to meet your responsibilities

If you fail to meet your responsibilities as a TA in a satisfactory manner, then the following may result: Informal Contact. You will be contacted by your course instructor to discuss any problems related to your performance of duties. If the problem is corrected, no further discussion will ensue.

Formal Contact. The course instructor will contact you in writing about the problem or problems related to your performance of duties. Copies of the formal contact are sent to the Department Head for Graduate Studies and Department Head, and if warranted, to the NMSU Graduate Administrator. A meeting will be called by the Department Head and other appropriate faculty to discuss the procedures for correcting the problem. This meeting will be followed up with a letter to the TA detailing the correction procedure.

Formal Action. If the problem is not corrected as outlined in the formal contact meeting, one of several actions may be taken by the department. These could include reduction in salary for absences from teaching duties (for a problem related to non-performance of teaching duties), temporary dismissal from duties, or permanent dismissal from duties. You can be assured that formal action is taken only after discussions and warnings have taken place (except in cases of serious misconduct).

B. TA Assignment Hours

The hours involved with laboratory sessions or grading are variable, depending on several factors such as the number of laboratory sections per week, the number of separate labs scheduled throughout the semester, the number of students in the class, and the frequency of graded assignments. On average, the total of these hours should be consistent with hours you are assigned as a TA.

If you find that on average you must spend more than the proper number of work hours per week to perform your assigned duties satisfactorily, then you should first request your course instructor to reduce your assignment(s) appropriately. If this does not help, or if for any reason you do not wish to make this request to your supervisor, then you should contact the Associate Department Head for Graduate Studies.

VI. Evaluations

A. Informal Evaluation

TA performance is continuously evaluated by the faculty member to whom the TA is assigned for teaching and grading duties. Informal, faculty evaluations are based on observations made during drop-in visits, scheduled visits to the labs, examination of graded homework samples, and feedback from students. This type of evaluation is intended to be informal and is aimed at providing constructive information to the TA about his/her performance.

B. Formal Evaluation

Formal evaluations are done electronically at the end of the semester along with the evaluations of the classroom portion of the course. The supervisor will provide the TA with the evaluation scores after the grades are turned. The average scores are examined when a TA renewal is requested (see section I. B).

In the formal evaluation, students are asked to answer the following questions using one of the choices (point scores are denoted in parentheses):

(4) Strongly agree, (3) Agree, (2) Neutral, (1) Disagree, (0) Strongly disagree

1. **Knowledge of TA/Grader:** The TA/Grader shows a good understanding of the course material.

2. **Communications Ability of TA/Grader:** The TA/Grader is very good at communicating with students, both in conveying knowledge about the subject matter and knowledge about class/laboratory procedures and expectations.

3. **Fairness of TA/Grader:** The TA/Grader is fair in grading

4. **Usefulness of Assignment Feedback:** The feedback provided by the TA/Grader on the graded assignments was very helpful in increasing my understanding of the subject material.

5. **Promptness in Returning Graded Assignments:** The TA/Grader always returned graded assignments within one week of submission or within a different timeframe specified by the instructor of the class.

6. **Responsiveness of the TA/Grader:** The TA/Grader responded promptly to questions and concerns voiced by students and is willing to assist students.

7. **Punctuality of the TA/Grader:** The TA/Grader was always on time for scheduled laboratories, discussion sessions, office hours, and appointments

8. **Organization and Preparedness of the TA/Grader:** The TA/Grader was prepared for and familiar with the lab/class assignments.

9. **Improvements for TA/Grader:** (open ended)

10. **Strengths of TA/Grader:** (open ended)