Teaching Portfolio

Alireza Tabatabaeenejad

Department of Electrical Engineering—Electrophysics
University of Southern California
Los Angeles, CA
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Statement of Teaching Philosophy
“Give a man a fish, and he eats for a day. Teach him how to fish, and he eats for a lifetime.” — an ancient Chinese proverb

My student instructor in an introductory electromagnetics course in college once told me that gaining the ability to solve a problem was more important than solving the problem. This idea was confirmed, and reconfirmed, through years of my involvement in research and coursework in electromagnetics and applied mathematics. Gaining problem solving skills, whether in the simple context of homework assignments or in the course of a challenging research project, takes several steps. I believe that in science and engineering, the most important steps to this end are deepening our knowledge of the fundamentals, gaining insight into the physical phenomena, and acquiring self-learning ability. I, as a teacher, strive for a friendly learning environment where depth, insight, and self-learning are valued most.

Mastering engineering concepts entails physical insight, which can be gained through practice and experience. Moreover, as in many areas in science and engineering, applied mathematics is not only a necessary tool for explaining electromagnetics and remote sensing phenomena, but also a way of broadening our insight. Where applicable, I get benefit from my background in applied mathematics to cover the theory and lay the foundation of the student's understanding of the subject. I, however, do not cover unnecessary theoretical details, because too much detail overshadows the concept, especially for an undergraduate audience. I spend a good amount of time on presenting practical examples and applications of the course content to not only deepen the student's understanding of the subject, but also boost their motivation in the subject.

I use a careful combination of blackboard, for derivations, and PowerPoint slides, for demonstration of examples and applications. These examples, if challenging enough, can prevent the course from losing value to the students by preventing their overconfidence. These examples also increase the student's insight by getting them to think together and view problems from different perspectives. I take advantage of teaching technologies such
as web-based course and collaboration environments to increase communication between the students and instructor inside and outside of class (e.g., online office hours), promote engagement with the course content (e.g., documents, resources, homework sets), open up communication and cooperation among classmates (e.g., forums, discussion), and provide prompt feedback for the instructor and students on their performance (e.g., polls).

I carefully design homework assignments that would require my students to review and reflect on the covered material, and, in some graduate-level courses, refer to additional references. These assignments would engage students in the problem-solving process and enhance their self-learning skills. I believe such homework assignments are also indicative of the student's performance in the course and could be used as an assessment technique, especially in graduate-level courses. Depending on the course and its audience, I also employ traditional assessment methods.

I have always welcomed feedback from my students, mentors, and colleagues. While departments usually ask for the student's feedback in the middle and at the end of each semester, I conduct early teacher evaluation in my classes to assure my students that I respect their input and to adjust my teaching style and methods.

I have earned extensive pedagogical and mentoring experience through several teaching and faculty development activities that will be an asset in my contribution to your curriculum. I am competent to teach and develop undergraduate- and graduate-level courses in the area of active remote sensing theory and applications, exploration geophysics, and mathematics of remote sensing. Study of remote sensing requires student's engagement with the fundamental fields of mathematics and physics. Teaching remote sensing is, therefore, an excellent channel to developing student's problem-solving skill, which in turn would demand depth, insight, and self-learning.
Teaching Experience

I started to experience teaching when I was an undergraduate student at Sharif University of Technology. I served as Teaching Assistant three times for Electric Circuits I and II. My responsibilities were leading discussion sections and solving homework problems.

At University of Southern California, despite being a research faculty without teaching requirement, I have requested the department to allow me to teach when there is a need. In Fall 2016, I taught Electromagnetics I (EE 330) at USC. At the University of Michigan, I served as Graduate Student Instructor four times. My responsibilities were holding office hours, solving homework problems and posting the solution to the Web, and leading lab and discussion sections. Two of the courses I taught were graduate-level and two of them were undergraduate-level courses. The list of these courses and excerpts of their syllabi follow.

1. Graduate Student Instructor, *Electromagnetics Theory I*, Fall 2002, University of Michigan
2. Graduate Student Instructor, *Introduction to Circuits*, Winter 2003, University of Michigan
3. Graduate Student Instructor, *Electromagnetics Theory I*, Fall 2003, University of Michigan
5. Instructor, *Electromagnetics I*, Fall 2016, University of Southern California
Instructor
John L. Volakis

Text

Handouts
The great majority of the class lectures will be given as handouts; these handouts will be posted on the Web. You are expected to print these notes and bring them to class. Lectures will mostly follow these handouts. The handout notes and homework assignments are expected to serve as a guideline for the covered material. The book covers the same material but will only serve as reference and will not be followed during lectures.

Homework
Approximately 8-10 homework sets will be given. Regardless of the day of assignment, homework is due exactly one week after the date of assignment unless noted otherwise. Delayed homework causes substantial inconvenience to the grader schedules. You must turn in homework by 5:00 p.m. the day they are due. Place them in my faculty mailbox by 5:00 p.m. (3411 EECS, 3rd floor), if not delivered in class on the due date. Please do not use any other mailbox. If you deliver late homework, you run the risk of your homework not being graded. Most definitely, it will not be graded if the solution has already been posted on the web. Homework solutions will be posted on the web within approximately one week from assignment.

Grading
Homework: 30%
Midterm: 30% (on a date to be announced – last year it was given Nov. 6)
Final: 40% (Thursday, December 19, 2002, 4:00 – 6:00pm)

Books for Reference
- Harrington, *Time Harmonic Electromagnetic Fields*, 1961 (the classic first-year graduate EM book, a concise version of Balanis)
- Cheng, *Fundamentals for Engineering Electromagnetics* (a popular basic undergrad textbook)
• Ulaby, Fundamentals of Applied Electromagnetics (our most recent undergraduate textbook used at UM)

Course Outline

• Maxwell's Equations (Balanis, Chapters 1, 2 and 3) and handouts: Differential and integral forms; continuity equation; constitutive relations; media classification; Poynting theorem; time harmonic fields; complex Poynting vector, homogeneous wave equation and its solution.
• Plane Waves (Balanis, Chapters 4 and 5) and handouts
• Field Representations and Wave Solution in Unbounded Space (Balanis, Chapters 6 and 14) and handouts: Electromagnetic sources, solutions of 2D and 3D inhomogeneous wave equation, vector and scalar potentials, Hertz potentials, potentials for static fields, near zone and far zone representations.
• Waveguides and Guided Waves (Balanis, Chapter 8) and handouts: Parallel plate waveguide, grounded dielectric slab, rectangular waveguide and cavity.
• Green's Functions and Waveguide Excitation (Balanis Chapter 14) and handouts: Green's functions and their construction, sources in waveguides and cavities, Green's identities, integral equations.
• Cylindrical Waves and Structures (Balanis, Chapters 9 and 11): Cylindrical wave functions, circular metallic guide, dielectric rod, cylindrical wave transformations, scattering by metallic cylinder.
• Spherical Waves (Balanis, Chapter 10): Spherical waves and spherical cavity.
• Electromagnetic Theorems (Balanis, Chapter 7): Duality, uniqueness, image theory, equivalence principle, reciprocity and reaction theorem, Babinet's principle.
• Applications to Radiation, Scattering and Propagation: Antennas, aperture radiation, scattering and radar cross section of metallic, dielectric modeling, waveguide perturbations.
Instructors
Section 1
Prof. Fred L. Terry, Jr.

Section 2
Prof. Leo C. McAfee

Chief Lab Instructor
Dr. Alexander Ganago

Text Books

Computing Resources and Skills
You must have access to a computer running MATLAB (CAEN workstations or any PC running the Student Edition of MATLAB or better). Only very basic MATLAB knowledge will be necessary. Specific examples will be given the lab materials. MATLAB 6 (release 12) is preferred.

Prerequisites

Additional Comments
In this class you will acquire the basic tools for analyzing electronic circuits (and many other physical systems). These tools alone will not make you great circuit designers, but without them, you cannot become a great designer. It is analogous to becoming fluent in a language. Here, you will learn the basic syntax and some vocabulary, but you will not become a great French poet by taking French 101 (but try it without it!). The labs will help you develop practical skills and to connect classroom “theory” with the “real world.” They are designed to be both educational and often fun, but are aimed first at educating future engineers not at training future technicians; therefore, some lab exercises may be basic in nature.

Homework
Homework assignments may be done with partners, but you are warned that failure to work enough significant problems on your on will almost certainly result in poor exam scores.
Overt, mindless duplication (including photocopying) will result in no credit for the assignment.

Midterm and final exams will be given under the CoE Honor Code and will be individual efforts. The exams will be closed book. Basic scientific/engineering calculators will be required for the exams, but no use of laptop or other higher-level computers will be allowed on exam. Use of any form of communication (wireless or otherwise) during exams will constitute an Honor Code violation.

**Grading**
The class will be graded “on-the-curve” with the median grade centered on the B/B-boundary (2.85/4). At the instructor’s discretion, a higher overall performance by the class will result in a higher average overall grade.

- Labs - 30%
- Problem Sets - 15%
- Midterm Exams (2) - 30%
- Final Exam - 25%

**Course Outline**
- Introduction to electrical circuits
- Kirchhoff's voltage and current laws
- Ohm's law; voltage and current sources
- Thévenin and Norton equivalent circuits
- Energy and power
- Time-domain and frequency-domain analysis of RLC circuits
- Operational amplifier circuits
- Basic passive and active electronic filters
- Laboratory experience with electrical signals and circuits
Instructor
Mahta Moghaddam

Primary Text

Handouts
Several will be given throughout the course; will be on Web site.

Other References
Balanis, *Advanced Engineering Electromagnetics*, Wiley and Sons

Grading
Homework (10 sets) – 30%
Hour-exams (two 60-minute tests) – 20% each
Final Exam – 30%
Office visit – 3% deducted for no-shows

Homework
All homework is due by 5pm on Thursday of week following assignment. Late homework is discounted at 20% per day (penny stock after Tuesday). Solutions will be posted on website one week after due date. It’s best to turn in homework in class or at my office. At your own risk, you can also place it in my mailbox in 3411 EECS.

Course Outline
- Topic 1 – Maxwell’s Equations
  - Review of vector analysis
  - Continuity equation
  - Dispersion relation
  - Spatial and temporal frequencies
  - Homogeneous wave equation and its solution
  - Energy conservation, Poynting theorem, Poynting vector
  - Time-domain and time-harmonic fields
  - Polarization
- Topic 2 – Waves in Unbounded Space
  - Hertzian dipole and waves
  - Vector and scalar potentials
  - Plane waves
• Topic 3 – Waves in Media
  o Constitutive relations and media properties
  o Dispersion relations
  o Group and phase velocity
  o Conductive media and plasmas
  o Reflections and transmission at planar boundaries
  o Boundary conditions
• Topic 4 – Wave Guidance and Resonance
  o Rectangular structures (plane waves)
    ▪ Parallel-plate and rectangular waveguides
    ▪ Rectangular cavity resonator
    ▪ Dielectric-slab rectangular waveguides
    ▪ Layered media
  o Cylindrical structures (cylindrical waves)
    ▪ Cylindrical waveguides
    ▪ Cylindrical cavity resonators
  o Spherical cavities (spherical waves)
• Topic 5 – Theorems of EM Waves and Media
  o Equivalence/duality/reciprocity/Babinet’s principle
  o Quasi-static limit, geometric optics limit
• Topic 6 – Radiation and Elementary Antennas
  o Cerenkov radiation
  o Green’s functions (scalar/vector/dyadic)
  o Waves due to EM source radiation
  o Near- and far-field approximations
• Topic 7 – Introduction to Scattering (if time allows)
University of Michigan  
Department of Electrical Engineering and Computer Science  
EECS 330  
Electromagnetics II (Winter 2005)  
MWF, 9:30-10:30, 1017 DOW  

Instructor  
Prof. Mahta Moghaddam  

Primary Text  

Handouts  
Several will be given throughout the course; will post to website  

Other References  

Grading  
Homeworks (12 sets) – 20%  
Laboratory – 20%  
Discussion participation – 5%  
Hour-exams (two 90-minute tests) – 15% each  
Final Exam – 25%  

All exams are closed-book and closed-notes. But you can bring one hand-written double-sided sheet of notes. Course letter grades assigned according to customary linear scale unless otherwise warranted.  

Homework  
All homework is due in class on Wednesday of week following assignment. Late homework is discounted at 20% for the first day, not accepted if more than a day late.  
Solutions will be posted on website one day after due date. It is OK, in fact encouraged, to collaborate on homework and discuss them with your classmates. However, each of you need to turn in your own separate homework. Carefully doing your homework problems is very important in your overall success in the class. Not only is each homework set worth roughly 2% of your overall score, but also is needed for you to fully grasp the concepts covered in class.  

Laboratory and Discussion Section Schedule  
The first lab will meet during the week of January 17, 2005. There will be 4 labs for this class, held every other week. You may download the lab manuals from the course web page. The last lab will be during the week of March 7th, after which the lab project starts.
You will get more information and instructions about the project from your lab GSIs. During the weeks when there are no labs, the discussion section will be held. They will continue throughout the semester (every other week, starting Thursday 01/13/04), even during the project period. Your discussion GSI will go over additional problems or topics that are more challenging, and which you might want to see emphasized more. The GSI will explain the attendance and participation requirements. Remember that these discussion sections are meant to reinforce the class material, and they also account for 5% of your grade. So go to them and use them to your best advantage.
University of Southern California
Ming Hsieh Department of Electrical Engineering
EE 330
Electromagnetics I (Fall 2016)
Fall Term 2016 (Session 001, Section 30463R)
Units: 3
Tuesday, Thursday, 14:00–15:20, SGM 601

Instructor: Alireza Tabatabaeenejad
alirezat@usc.edu
Office Hours: Thursday, 16:00–18:00 (or by appointment), DRB 226

Teaching Assistants: Liang Chen, chen83@usc.edu
Pratik Shah, pratiks@usc.edu

TA Office Hours: Pratik: Monday, 16:00–18:00, DRB 226
Liang: Wednesday, 16:00–18:00, RTH B105

Discussion: Friday, 10:00–11:50, GFS 108
Friday, 12:00–13:50, GFS 221

Course Website: blackboard.usc.edu
Calendar: https://goo.gl/n7FFzo
Twitter: @USC_EE330

Primary Text: Ulaby and Ravaioli, Fundamentals of Applied Electromagnetics (7th Edition); Website: http://em7e.eecs.umich.edu/

Other References: David K. Cheng, Field and Wave Electromagnetics
Kraus and Fleisch, Electromagnetics with Applications
U. Inan and A. Inan, Electromagnetic Waves
Hayt and Buck, Engineering Electromagnetics

Grading:
10 Homework Sets 30%
Midterm Exam 30%
Weekly Quizzes (in Discussion) 10%
Final Exam 30%

Important Dates:
First Day of Class 08/23/2016
Midterm Exam 10/06/2016, 14:00–15:20
No Class 11/08/2016
Thanksgiving 11/23–27/2016
Last Day of Class 12/01/2016
Final Exam 12/08/2016, 14:00–16:00

Homework
All homework sets are due in class one week following assignment. Late homework will not be accepted. Solutions will be posted on the course website 2–3 days after due date.
Prerequisite
You are expected to be familiar with circuit analysis, Ohm's law, Kirchhoff's current and voltage laws, and undergraduate calculus.

Course Description
This course will cover basic static and dynamic electromagnetic field theory and applications, electrostatics, magnetostatics, Maxwell's equations, energy flow, plane waves incident on planar boundaries, and transmission lines.

Learning Objectives
By taking this course, you will gain a deeper understanding of electromagnetic concepts and applications. Particularly, you will learn
- Analysis and design of transmission line circuits
- Spatial patterns of the electric and magnetic fields induced by charges and currents
- The gradient, divergence, and curl operation on spatial functions
- The temporal and spatial waveforms of plane waves propagating in lossless and lossy media
- Field distributions inside a rectangular waveguide
- Basics of antennas and radiation pattern of linear antennas

Miscellaneous Information
1. All exams are closed-book. You may use a calculator and notes written on both sides of a single 8.5"×11" sheet of paper. You will be tested on all material covered in class, on the assigned readings, and on the homework problems as well as problems similar to those. Please bring your USC ID card to each exam; it may be checked during the exam.
2. You must take the exams at the scheduled times. If you are absent during an exam, you will receive a grade of zero unless you have a valid reason for your absence and you have discussed it with the professor prior to the exam. A student must discuss a final examination conflict with the professor no later than two weeks prior to the scheduled examination date to arrange an acceptable alternate examination date and time.
3. The weekly quizzes are short (~15 minutes in duration) and are given during the discussion sessions. They are closed-book, closed-notes, and given throughout the semester. They cover material from the preceding week’s lecture and homework.

University Policy on Grading and Correction of Grades
Grading is consistent with the with the “Grading and Correction of Grades” handbook.

Honor Code
The common-sense honor code applies to all aspects of this course. The fine print is below on the specific issue of how much collaboration is permissible among students in the preparation of solutions to problem assignments. Bottom line is that all homework assignments are to be completed on your own. You are allowed, and encouraged, to consult with other students in the current class regarding the general approach to solving problems, but all work submitted by you must be your work alone. It is important that you learn how to do these problems on your own. You are not allowed to possess or in any way derive
advantage from the existing solutions prepared in previous years by former students, earlier professors, or from on-line sources. Violations of this policy are grounds for disciplinary actions filed with the Deans Office. If you have any questions or are in doubt, do not hesitate to ask for clarification.

**USC Statement on Academic Integrity**

USC seeks to maintain an optimal learning environment. General principles of academic honesty include the concept of respect for the intellectual property of others, the expectation that individual work will be submitted unless otherwise allowed by an instructor, and the obligations both to protect one’s own academic work from misuse by others as well as to avoid using another’s work as one’s own. All students are expected to understand and abide by these principles. *SCampus*, the Student Guidebook, contains the Student Conduct Code as well as the recommended sanctions.

**USC Statement for Students with Disabilities**

Any student requesting academic accommodations based on a disability is required to register with Disability Services and Programs (DSP) each semester. A letter of verification for approved accommodations can be obtained from DSP. Please be sure the letter is delivered to the instructor (or to TA) as early in the semester as possible.

**Religious Holy Days**

University policy grants students excused absences from class for observance of religious holy days. Students are advised to scan their syllabi at the beginning of each course to detect potential conflicts with their religious observances. Please note that this applies only to the holy days that necessitate absence from class and/or whose religious requirements clearly conflict with aspects of academic performance. Students should contact the faculty in advance to request such an excused absence. The student will be given an opportunity to make up missed work because of religious observance.

**Emergency Preparedness/Course Continuity in a Crisis**

In case of a declared emergency if travel to campus is not feasible, USC executive leadership will announce an electronic way for instructors to teach students in their residence halls or homes using a combination of Blackboard, teleconferencing, and other technologies. See the University’s Website on Campus Safety and Emergency Preparedness.
# Tentative Lecture Schedule

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<th>Week</th>
<th>Dates</th>
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<tr>
<td>1</td>
<td>08/23, 08/25</td>
<td>Chapter 1, Chapter 2</td>
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<td>08/30, 09/01</td>
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<td>09/20, 09/22</td>
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<td>11/29, 12/01</td>
<td>Chapter 9</td>
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Evaluations

The chart below shows the overall evaluation of my performance as the instructor of EE 330 (Electromagnetics I) at USC in Fall 2016. The detailed evaluation file is available upon request.

The chart below is based on student responses to the University of Michigan’s Office of Evaluation and Examinations (E&E) Teaching Questionnaires (TQ) that were distributed in my classes at the end of each semester. The questionnaires are available upon request.

Questions above are course-guide questions which focus on areas that students consider top concerns. Students sometimes use results on these questions in their selection of courses.
The chart above shows the median responses. For E&E Teaching Questionnaires, the median is a value between 1.0 and 5.0. When all students respond “strongly agree” to a question, the class median is 5.0; when all students respond “strongly disagree,” the class median is 1.0. A value between these extremes can be interpreted as the point on a continuous scale below which 50% of all responses fall.
Select Testimonials

Electromagnetics I (EE 330)

- "Very fair exams, and reasonable difficulty in assignments."
- "Did a good job of progressing through the course towards the 2nd half of the semester."
- "Presented material in a simple way, relatively easy to understand."
- "Very knowledgeable about the subject and would explain difficult concepts well when asked."
- "Enthusiasm and passion"
- "Good effort and coherent"

Introduction to Circuits (EECS 215)

- “My instructor (Ali) was very responsive to any questions we had.”

Electromagnetics II (EECS 330)

- “Both Ali and Tsai were helpful in so far as possible on homeworks, labs, and projects. Ali was clear, concise, a bit too theoretical, but also knew his stuff and helped out as much as he could.”
- “The GSI was very skilled in the classical sense…”
- “Ali was an excellent GSI. He explained things clearly and patiently during office hours and I enjoyed his quiz.”
- “Well prepared, extremely thorough knowledge of subject matter, which caused some explanation to be too in depth or too advanced.”

Electromagnetic Theory I (EECS 530)

- “Mr. Alireza Tabatabaeenejad was my Graduate Student Instructor (GSI) for EECS 530, a graduate-level course on electromagnetics held at The University of Michigan – Ann Arbor during the Fall semester of 2003. I primarily interacted with Alireza through email discussions and during his office hours. His academic credentials aside, Alireza had impressed me as a truly dedicated and meticulous professional. For EECS 530, in addition to holding office hours twice a week to
answer questions from the students, he was in charge of providing solutions to the weekly assignments as well as grading them. In my opinion, he carried out those duties of the GSI seriously: the solutions were well-written and timely-delivered to the students, the grading was fair and consistent, and the office hours were conducted in a productive and professional manner. Above all, he was always courteous and considerate toward the students—both inside and outside of the classroom; and, although he knew more about the subject of course than the students, he approached each conversation—whether it was through emails or in person—with a sincere sense that he wanted to learn from you just as much as you wanted from him.

Speaking as a student who has interacted with many GSIs over the years, I feel that teaching requires not only the proper academic qualifications but also—perhaps more importantly—the patience and interpersonal skills to convey ideas and concepts to the student; Alireza certainly is one of those rare individuals who exemplifies the confluence of these essential skills. Looking back at my both undergraduate and graduate years, I consider Alireza to be one of the finest GSIs I’ve encountered.” DaHan Liao

Electromagnetic Theory I (EECS 530)

• “Alireza was the graduate student instructor for EECS 530 which I took during the fall semester of 2002. He was always patient and willing to spend time explaining things more than once in order to help students understand. I thought his explanations of the concepts from class were clear; beyond knowing the material himself, he was able to present it in an understandable way too. He also seemed to maintain a good balance of being willing to help students but not do their work for them. In my experience taking graduate classes at UM, the last two traits are especially rare.” Amelia Buerkle
Graduate Student Mentor Feedback

When I was teaching EECS 330 at the University of Michigan, I asked my Graduate Student Mentor to conduct a midterm student feedback session in my class. My mentor’s feedback as well as students feedback is coming below. The report provided by my mentor is available upon request.

Mentor Feedback

Strength
1- Good use of visual aids; good handwriting and plots.
2- Very clear speech and good pace of speaking.
3- GSI has good control over the class and keeps the class focused on the purpose.
4- Good voice intonation…keeps class in the topic through his modulation.
5- Responsive to students when they raise their hands.

Suggestions for Improvements
1- GSI can regularly stop to make sure the class is following him and pause after asking the question allowing the student to think and catch up.
2- Personalizing the answers by recognizing the student by their names helps keep the students interested and encourages them to ask questions.
3- Talk to students before the class starts officially. Also try to start class ten minutes after the hour unless it is decided that you will be starting earlier.
4- Encourage students to sit up in the front, so that there is more scope for interaction.
5- Write your agenda on the blackboard or on a slide at the beginning.
6- Encourage active learning by giving out a discussion question before the discussion and asking the students to work on the problem/concept before coming in.

Student Feedback

Strength
1- Knowledgeable: good grasp on subject.
2- Helpful and approachable.
3- Patient and concerned: listens to all questions and does not get bugged with a slow learner; explains examples a couple of times.
4- Clear and concise.
5- Punctual and timely.
6- Good office hours.
7- Good blackboard use abilities: neat handwriting and plotting graphs.
8- Friendly and committed.
9- Speaks loudly and clearly.
10- Confident and efficient.
11- Treats students with respect.
12- Good amount of office hours: always in lab on time to help

Areas that Need Improvement
1- Need more homework examples in discussion.
2- Less derivation and more practical approaches; too theoretical.
3- Assumes we know too much; skips things, since they are supposed to be intuitive.
4- More physical interpretation, less monotonous…introduce transitions from one topic to another.
5- More coordination with the professor.
6- Have a blackboard based approach to the office hours also, where students with the same question can have their questions answered without waiting.
7- Not enough homework hints for people who can’t get to the office hours.
8- Come into discussion with a set of prepared topics and not ask us to ask questions in discussion also.
9- Thursday office hours might be better scheduled to Monday.
Efforts to Improve Teaching

Practice Teaching Sessions
I have facilitated several practice teaching sessions for the Center for Research on Learning and Teaching (CRLT) and the College of Engineering, University of Michigan, during their orientation programs designed for prospective graduate student instructors. I have also served as a GSI consultant for the English Language Institute during its training workshop designed for international graduate students being considered for GSI positions. In these practice sessions, each prospective GSI presents a short lesson for a few minutes, and other workshop participants provide the presenter with feedback on his or her strengths and also suggestions for improvement. Watching other people while they teach and listening to the feedback provided by other observers have helped me broaden my insight into teaching.

Design of CRLT Workshop “Ethics of College Teaching”
Fall 2006
Two other GSMs and I designed this workshop to address the ethical concerns that can arise in various aspects of college teaching, such as developing course material, grading, and interacting with students inside and outside the classroom. Since many ethical questions have no clear-cut answers, we presented to participants ways of thinking that would help them decide how to act ethically when difficult situations arise.

CRLT Seminar: Consulting with GSIs: Early Feedback and Student Ratings
September 2006
Consulting with GSIs around student ratings is more common with the use of early, midterm, and end-of-semester evaluations in many departments. In this interactive workshop, participants will learn techniques to interpret student ratings and practice consulting with their peers. In addition to providing time for practice and reflection, we will discuss the various roles a consultant can play in the process of consultation.
CRLT Seminar: Analyzing Video Clips in Lectures and Discussions

March 2006

This session presented numerous ways to frame video clips so that students learn to see what the instructor is showing them. Examples emphasized materials with complex social implications such as issues of social justice, cross-cultural representations, and historically specific contexts. Clips shown in the session were from documentaries, popular films, art films, and videos of performance art. Strategies help students follow instructors’ analyses of video-graphic materials, do close readings of their own, and discuss video clips. The session also covered ways of linking lecture presentations and film screenings with section discussions.

CRLT Seminar: Using Active and Cooperative Learning in Large Courses

January 2006

Many faculty members are using cooperative learning (or some other form of active student engagement) in large-enrollment courses to encourage students to be active participants in their learning. But how do we structure these experiences to ensure that they lead to enhanced learning? How can faculty help facilitate powerful connections among students, between students and faculty, and among all of us and our subject matter? This hands-on, interactive workshop focused on the professor’s role in designing and structuring cooperative learning. It included hands-on exercises and video examples from actual classes as well as the supporting theory and research. The workshop was presented by Professor Karl Smith, Morse-Alumni Distinguished Teaching Professor, Civil Engineering, University of Minnesota.

Graduate Student Mentor (GSM) Program, College of Engineering

Winter 2006

The Graduate Student Mentors (GSMs) at the College of Engineering are a group of experienced Graduate Student Instructors (GSIs) who serve as consultants and teaching mentors to the rest of the GSI population in the College of Engineering. The Graduate Student Mentors at the College of Engineering are centrally organized through the Office of the Associate Dean for Graduate Education, and are trained and supervised by staff from
the Center for Research on Learning and Teaching (CRLT). Each GSM is accountable for 20 to 30 Engineering GSIs. While centrally organized, the GSMs are responsible for Graduate Student Instructors in one, two or three departments; this arrangement allows GSMs to get to know one cadre of Graduate Student Instructors very well. The GSM program in the College of Engineering was founded on the belief that developing GSIs could benefit from the unique guidance, support, and experience that peer mentors provide. While all GSIs have access to mentoring from their advisors or other professors in their department, the peer mentor relationship provides a safe venue for exploration of teaching strategies and discussion of teaching initiatives and issues. GSMs in the College of Engineering are trained to mentor in a facilitative way, a model that appeals to their own sense of their role, and approaches the collegial style of supervision preferred by most GSIs. Additionally, the nature of the peer mentor-mentee interaction is such that it creates a reciprocity that benefits both individuals becoming a valuable learning experience for the GSMs themselves.

**Academic Careers in Engineering & Science**  
**October and November 2005**

The Academic Careers in Engineering & Science (ACES) Program was designed to provide engineering graduate students and research fellows with the necessary skills to be successful as engineering/science faculty. Those who attend and fully participate in all three sessions received a certificate that designated them as an "Engineering Academic Scholar." It was the third year this program was being offered, and was sponsored by the Office of the Associate Dean for Graduate Education, the CoE Graduate Student Advisory Committee, and Rackham Graduate School. All three sessions were mandatory and included the following topics:

1) Finding an Academic Job
2) Managing Your Research Group
3) Funding Your Research Group
Rackham-CRLT Seminar on College Teaching
May 2005
The Preparing Future Faculty Seminar, sponsored by the Horace H. Rackham School of Graduate Studies and the Center for Research on Learning and Teaching (CRLT) at the University of Michigan, prepared a select group of University of Michigan graduate students from a variety of disciplines for their first faculty job positions. For this nationally-recognized Seminar, advanced graduate students who had achieved candidacy and had college or university teaching experience were sought. The Seminar included the following topics:
1) Preparation for the academic job search including assistance with the creation of a statement of teaching philosophy, a teaching portfolio, and a syllabus.
2) Information about higher education, e.g., institutional types, governance and accountability, the nature of today's students, tenure, and faculty work life.
3) Discussion of effective and reflective teaching including meetings with University of Michigan junior faculty members, conversations about multicultural teaching and learning, and demonstration of and reflection on the use of instructional technology.
4) Introduction to other types of institutions through a trip to one of four local campuses (Albion College, Eastern Michigan University, Kalamazoo College, or Oakland University) and discussion with Washtenaw Community College faculty.
5) Exploration of and reflection on various pedagogical techniques; with particular emphases on inclusive teaching, active learning and instructional technology

CRLT Seminar: Teaching Problem Solving
February 2005
In this session, participants discussed ways in which GSIs can help students acquire the problem solving skills and techniques they use in their careers. Several examples and situations were used to explore students’ problem solving capabilities to determine where the problem solving process breaks down, and to discuss strategies for guiding students through difficult problems without simply providing the answers.
CRLT Seminar: Conversations about Refining Your Teaching Skills

January 2005

This session focused on Chapter 10 of P.C. Wankat and F.S. Oreovicz’s Teaching Engineering (One-to-One Teaching and Advising). This excerpt emphasized the importance of the way in which a teacher/mentor interacts directly with a student. Specific skills and goals for creating a productive learning environment were covered.

Certificates are available upon request.