



Is EE Right for You?

- **“Toto, I have a feeling we’re not in Kansas anymore.”**
- **Now that you are here, did you make the right choice?**
- **Electrical engineering is a challenging and satisfying profession. That does not mean it is easy. In fact, with the possible exceptions of medicine or law, it is the MOST difficult.**
- **There are some things you need to consider if you really, really want to be an engineer.**
- **We will consider a few today.**

Is EE Right for You (2)?

- **Why did you decide to be an electrical engineer?**
 - **Parents will pay for engineering education (it's what they want).**
 - **You like math and science.**
 - **A relative is an engineer and you like him/her.**
 - **You want to challenge yourself, and engineering seems challenging.**
 - **You think you are creative and love technology.**
 - **You want to make a difference in society.**



The High School “Science Student” Problem

- In high school, you were **FAR** above the average.
 - **And you probably didn’t study too hard, right?**
- You liked science and math, and they weren’t terribly hard.
- You figured out that the professions that make the “big bucks” are law, medicine, and engineering.
 - **But those lawyers have to memorize a bunch of dry facts!**
 - **And who wants to see all that blood and cut up bodies?**
 - **Engineers get to make design and build cool stuff.**
 - **So here you are.**

One Catch...

- Science and engineering are **NOT THE SAME**.
- Generally, scientists try to discover new facts on the horizon of human knowledge.
- Engineers use scientific knowledge to produce cost-effective technological answers to societal problems.
 - To an engineer, the cost is as important as the solution (sometimes **MORE** important!).
 - The engineer is not interested in doing something once, but in producing something that can be replicated inexpensively.
 - The engineer has a responsibility to help his company make a profit.



You Should Be an EE If:

- **The thought of creating something entirely new is very exciting to you (think iPhone!).**
- **You work and play well with others (NO engineer EVER works alone!).**
- **Hard work and long hours are fine with you so long as the work is not repetitive or boring (and yes, even the best engineering tasks have boring parts – try negotiating price and delivery with a vendor!).**
- **You really, really loved trigonometry. And you can't wait to study calculus!**

You Should Be an EE If (2):

- **You are patient and enjoy the challenge of different courses, even though you are not sure why they are in the curriculum.**
 - **Don't think you need English? Wait until that first presentation to your boss or that first report to the VP of engineering!**
 - **Don't understand why you need history? George Santayana: "Those who cannot remember the past are condemned to repeat it."**
 - **Think chemistry is a waste for EE's? Wait until you get that first job in a wafer fab at Texas Instruments!**



You Should Be an EE If (3):

- **The idea of building circuits in the UTD EE labs is so cool you just cannot wait to get there.**
- **The idea of contributing to society sounds exciting or fulfilling.**
- **You like the idea of having responsibility and taking a major role in an important project.**
- **You think you would like the idea of managing a development team and completing a significant engineering accomplishment.**



Succeeding in the University

- **BUT – wanting to be an EE is not enough.**
- **You must learn to succeed in school when things are not going well, or when you encounter a problem:**
 - A test grade will be bad – or worse than you anticipated.
 - **A lab project will tank.**
 - Personal problems may arise (a bad romance, a family member's illness or death).
 - **You may have fewer friends (at least at first).**
 - A specific topic or course may prove extremely difficult.
 - **The change from “coddled” HS student to “independent” (and largely on-your own) college student may seem overwhelming.**

Good News: You Have the Ability!

- **No one here will fail because she is not smart enough.**
 - You are the “cream of the crop” – the best from high school. If not, you would certainly NOT be in engineering.
- **If you fail, it will be because you:**
 - Do not focus.
 - Are lazy.
 - Have bad (ineffective) study habits.



Survival Techniques

**You heard some of this
in ECS 1200, but lets
review a few things
that can make success
at UTD a “sure thing.”**



Time Management

- **Time management is key. Understand the time investment required.**
 - **Example: For a 15-hour course load, you will need to study ~3 hours/week for every hour in class. So, 15 credit hours → 60 hours/week. And that does not count eating, sleeping, a job, and even leisure activities(!).**
- **College is NOT high school. High school study habits will NOT see you through UTD! If you do not study effectively, you will fail.**
 - **Make a schedule (Text, p. 13), then follow it.**
 - **Don't put off scheduled course-related items: homework, test study, etc.**
 - **Let recreation be a REWARD for study items that are completed!**
 - **Limit distractions. Resist the seductive pull of a friend's visit, a TV show, even going out to eat versus having a snack and continuing your study (make it a nutritious snack).**



Don't Dilute Your "Educational Opportunity"

- **Unless you are one of the lucky few that have the "national bank of dad" (or mom) behind you, many of you are probably on a "college budget." I.e., \$\$ are tight.**
- **Many students take jobs to supplement income while in school. I did it myself. However if you do take a job:**
 - **NEVER work more than 10 hours/week with a full load.**
 - **Or more than 20 hours/week with 9-12 hours.**
 - **And if working a full 40 hours/week, take no more than 6 hours (3 preferable).**
 - **IF WORKING X HOURS PER WEEK WILL AFFECT YOUR GRADES, DON'T DO IT!**

Other Important Considerations

- **Learn to be a social butterfly! You need to be able to make friends, work well with others, and “get along.”**
 - **At lot of your instructor’s “best studying” was with a group!**
- **As mentioned in ECS 1200, keep up your health!**
 - **Eat properly (avoid the “freshman 15”).**
 - **Avoid “empty calorie” snacks.**
 - **Get enough sleep especially before tests (example).**
 - **Avoid developing bad habits (staying out too late, drinking too much alcohol, eating too much starch, etc.).**
 - **The good news: There’s nothing wrong with an occasional indulgence (e.g., cheeseburger and fries) every once in a while. Just not twice a day!**



How Do You Get There (Graduation)?

- Learning = “rewiring neurons” = STUDY!
- Homework is NOT drudgery. Homework gives you the opportunity to practice and perfect new problem-skills.
 - Never miss any homework problems.
 - Do all optional work. The extra items will help make you more proficient.
 - Properly done, homework not only hones skills, but also points to holes in your knowledge (a good reason to visit your instructor during office hours!).
- Make study time count:
 - Have a good place to study (good desk, good chair, plenty of light).
 - If your apartment/dorm, etc. is noisy, go somewhere else – library, friend’s place (that is quieter), etc. **AVOID DISTRACTIONS!**

Getting There (Continued)

- **Be prepared:**
 - You will see most instructors a few hours/week (1.5-4). We cannot possibly teach you all course content unless you are prepared.
 - When you need additional help, come to office hours.
- **Take good notes.** I do not require note-taking in EE 1202 (that is, notes are not taken up and graded) However, if you are NOT taking notes, you will have a SHORT college career!
- **Remember that studying your textbook is NOT like reading for entertainment.**
 - Print out lab exercises, read carefully, make notes in the margins. Preparation is VERY important.
 - As mentioned earlier, do ALL the homework!
 - **And finally, SELLING TEXTBOOKS IS EVIL!!!!**

Exploring Your Choice

- **How do you find out if electrical engineering is right?**
 - **Internships and co-op positions give “real experience.”**
 - **A mentor – faculty or upper class person – can help.**
 - **Student chapters of professional societies – SWE, TSPE/NSPE, IEEE, NSBE, etc. can also gain you perspective (guest speakers).**
 - **Hopefully, EE 1202 will help as well.**

Taking Tests (1): Prior to the Test

- Review thoroughly for tests.
- **Repetition is good. One of the great forgotten techniques is “concentrated staring.” It does NOT hurt to go over material several times.**
- **Get enough sleep before the test! (Story to illustrate).**
- **Prepare well in advance. Make sure you have done ALL the homework’s. Review lectures and assure that you understand all the basic principles to be covered on the test.**
- **Do NOT memorize specific problems, but solution methods and fundamental principles.**
- **If allowed a “cheat sheet,” prepare it by hand, if possible. A great deal of knowledge can be gained by writing out a “cheat sheet” manually. Completing this sheet can be half the studying process.**



Taking Tests (2): During the Test

- I have seen students start writing before they finish reading a problem! **Read a problem thoroughly FIRST, to be sure you understand it.**
- **Follow instructions carefully. Make sure you understand all problem parameters and proceed as directed.**
- **Meter your time. Do NOT spend too much time on any one problem. Partial credit cannot be given if you did not attempt the problem.**
- **If not sure how to complete a problem, write down applicable formulas and/or principles. State how you think you should proceed. **Even if you do not complete the problem, you can earn some partial credit.****
- **Don't panic! Students sometimes draw a blank reading a problem for the first time. Take your time and read it again. The steady, ordered approach always works (if, of course, that you are well prepared!).**
- **If all else fails, work on another problem then return to the problem that has you "stumped."**
- **If still not able to complete it, move on, after putting down as much as you can for partial credit. Don't spend time dithering unproductively!**

Aids in Learning

- **Group study is fine if done right.**
 - **Do homework together (but DON'T copy!).**
 - **Studying together for tests is fine. Learn to bounce questions off each other, compare answers, debug wrong solutions together.**
- **Resources – UTD has many good resources:**
 - **Mentors – Upperclassmen can be a big help. A good way to meet upper class students is in student organizations.**
 - **Tutors – Tutoring is also available (E.g., math recitation sections [usually part of math courses], student organizations [SWE, IEEE]).**
 - **Reference material – Consider the ECSN and UTD libraries.**
 - **Course TA's – Your teaching assistants (for instance, for EE 1202 lab) can be a great source of information. Graduate students know a lot!**
 - **Your Instructor – When all else fails, go to office hours.**



Some Other Important Items

- **Network(!!). Make lots of friends. Your future depends on your professional connections so start making them now. Your instructor got his current UTD position via networking!**
- **Learn to write and present well. Being a clear writer and speaker will greatly enhance your career! (Examples)**
- **Practice being a logical thinker. Be prepared to debate when you think someone is uninformed, ignorant, or prejudiced.**
- **DON'T STUDY TO PASS AND MAKE A GRADE! Study to learn the material. If you know the material thoroughly, a good grade is a foregone conclusion (as is success at UTD!).**
- **Back up computer study material and always have a backup that is NOT at the same location as your laptop (a fire could then be a disaster).**



And While You Prepare to be an EE:

- Be a whole person. One of the best classical organists I ever met is a brilliant physician and chief of emergency medicine at one of the local hospitals. Cultivate outside interests and enjoy life as well as enjoying engineering.
- **Read everything! Read constantly! Read your local newspaper every day. Read magazines – especially those having to do with current affairs, news, and business (I recommend Forbes and Business Week). EVERYTHING YOU SHOULD READ IS NOT, NOT, NOT ON-LINE!**
- **If you get a chance for a job, especially a job before graduation, make sure you are well-prepared to impress your prospective employer (and remember slide 12 about school/work ratios!).**