



# Welcome to ECS!

- **You have entered one of the fastest-growing universities and schools of engineering and computer science in the nation.**
  - **1998: Total UTD enrollment < 9000.**
  - **Fall, 2011: Total enrollment >17,000.**
- **The Erik Jonsson School of Engineering and Computer Science already graduates more engineers and computer scientists than just a handful of schools across the United States.**



## **Jonsson School Enrollment, Fall, 2010**

- **Computer Science (CS/SE):**
  - Graduate -- 676
  - Undergraduate -- 726
- **Engineering (EE/ME/CE/TE/Bio):**
  - Graduate -- 598
  - Undergraduate -- 1,143
- **Total:** -- 3,143



## **Purpose of ECS 1200**

- **ECS 1200 is a course that is designed to ensure that you have a successful college career.**
- **We (the faculty of ECS) want to make sure that you make the best use possible of your four or five year stay at UTD, and that you emerge on the other side of it with a degree in engineering or computer science, and, more importantly, the tools and skills to have a successful career in your chosen technology area.**
- **In this way, ECS 1200 is a preparatory course to equip you to make the most out of university life.**



# ECS 1200 Topics

- **Learning About Learning**
- **Taking Notes and Reviewing**
- **Time Management, Studying, and Schedule Organization**
- **Oral and Written Communications**
- **How to Approach Homework and Why**
- **Creativity and Brainstorming**
- **Project Management**
- **Introduction to Design**
- **Using Computers (Excel and Matlab)**
- **Ethics in Engineering**
- **Stimulating creativity in a design exercise**
- **Planning and managing a project**

Lectures

Exercises



## ECS 1200 Schedule

- **ECS 1200 is mapped out in a detail schedule that is in your syllabus.**
- **Let's visit it now to see the overall direction of the course.**



## ECS 1200 Ground Rules

- **Homework and notes due dates are firm.**
- **Class notes must be re-organized and re-written to make a smooth, clear summary of information delivered in class. Crummy notes = crummy grade!**
- **Grades received on team projects are team grades. I.e., your personal accomplishment is not relevant.**
- **Team members should assure that ALL team members participate equally.**



## Questions I Don't Want to Hear

- “When are your office hours?”
- “What are we doing in the next class?”
- “Do we have a quiz next week?”
- “What team am I on?”
- “How do I contact my teammates?”
- “What are we doing in the next class?”
- “Is any homework due this week?”
- “Where is the restroom?”

## Questions I Would Love to Hear

- **“Is the following (---) an ethical lapse?”**
- **“Would you critique our project proposal?”**
- **“How do I sign up for membership in SWE (or SBE, or IEEE)?”**
- **“I do not understand this point in the last class lecture; could you please explain it?”**
- **“Could you help us start the brainstorming exercise?”**
- **“Which is better: Star Wars or Star Trek?”**



## Why Are You Here?

- **Just really like math and science, and want to give engineering or computer science a try.**
- **Uncle Joe or Aunt Sue was a programmer or engineer and I really like him or her, because he/she really seemed to like her job.**
- **My folks wanted me to go into engineering or CS.**
- **Engineers and computer folks make a LOT of money!**
- **I really like the idea of invention and technological creation and I am determined to be an engineer or computer scientist.**



## **“I Am Here to Help You”**

- **That’s not as ominous as it sounds (as, for instance, if the IRS told you that).**
  - **If you are bound and determined to be a technologist, we on the faculty want to help you get there.**
  - **If you aren’t sure, but want to give it a try, we want to help you make that decision (and hopefully convince you that engineering and computer science can make great careers).**
  - **If you are having second thoughts already, we want to help you set the correct direction for your life (but we will still sing the joys of engineering and computer science – after all, we are VERY enthusiastic about our fields!).**

# Getting Started

- **So, let's get started. ECS 1200 is a course that is meant to help you understand the new environment in which you find yourself.**
- **It is also a course to help you understand how to be a successful student, so that whatever your final choice of disciplines, you will continue to graduation, having equipped yourself with the tools and skills to have a flourishing career.**
- **And the first point to be made is:**

# Introduction to ECS

**“Toto, I have a feeling  
we’re not in Kansas  
anymore.” – Dorothy  
Gale\***

\* “The Wizard of Oz”



## Some Bad News

- The sad truth is that no matter how we, the faculty strive to assure that every student does well, we will not always succeed.
- **Some people in this class will FAIL and/or flunk out of UTD.**
- I know it is hard to believe, but I do NOT get a bonus for failing students (if I did, I would already be a millionaire).
- **The good news is that YOU have the ability to ensure that you are successful in UTD!**



## The Problem of the “Smart Kid”

- In high school, you were FAR above average.
  - Probably didn’t study too hard, right?
  - Lots of your classes were “boring” and “blow-off” subjects.
- In high school, lots of supervision – monitors who made sure you did homework, studied, etc (e.g. “study hall”).
- Now: On your own, at least to a certain extent.
  - Less supervision.
  - New diversions.
  - To a great extent YOU set your boundaries.
  - No one “looking over your shoulder” to or nag.



The Goal



## “Smart Kid” (2)

- As Dorothy said, you darn sure are **NOT** in Kansas (high school) anymore.
- In high school, the smart students don't have to study much if at all.
- In college, almost everybody has to study (exception: my 189-IQ friend in graduate school).
- If you don't have a 189 IQ, **YOU CANNOT SUCCEED SIMPLY BY GOING TO CLASS OCCASIONALLY AND GLANCING THROUGH THE TEXT!**

## “Smart Kid” (3)

- As noted earlier, the fact is that some percentage of people in this class will flunk out of UTD. Sad but true.
- **BUT: NO ONE WILL FLUNK OUT BECAUSE THEY ARE NOT SMART ENOUGH!**
- There are a number of reasons students do not succeed in the technology disciplines, but the overwhelming reason that students fail in ECS is that **THEY DID NOT DO THE WORK – BOTH WRITTEN AND STUDY – REQUIRED TO PASS.**
- More later in this lecture.

## “Smart Kid” (4)

- A 15-hour course load → 60 hours/week direct labor (i.e., 3 hours study/HW per class hr). Add living, eating, work, sleep, and even [sigh] leisure, and the week gets full! (We will address time management later.)
- To re-emphasize: College is NOT high school.
  - You are lucky to be here and you are expected to succeed.
  - In high school, your teacher was a “herd dog” – urging you to get work done. Not here: If you do not want to make the effort, the faculty really does not care. We have hundreds of other students straining to succeed that we need to attend to!
  - High school study habits will NOT see you through UTD! If you do not learn to focus and study effectively, you will fail.

## Other Differences

- **As mentioned earlier, you probably had support systems (teachers, parents) to help you focus.**
- **Now, you must learn to succeed on your own when you encounter a problem:**
  - **A test does not go well.**
  - **A class project tanks.**
  - **You have personal problems (a bad romance, lo or theft, a family member's illness or death) Ex Student losing housing.**
  - **You have less support than when you were at home.**
  - **Now, your must learn self-sufficiency and independence.**



## A Common Complaint

- **“Can you just raise my last test grade a little? I am on scholarship and I have to make a (insert requirement here) average to keep it!”**
- **Here’s the thing:**
  - **I didn’t go on a date or play eight hours of video games the night before the test instead of studying; you did.**
  - **I didn’t blow off the last two homework assignments because “Hey, homework doesn’t count much on the final grade, and I really know this stuff pretty well anyway;” you did.**
  - **I didn’t skip two lectures because “His lecture notes on line are pretty good and I’m a quick study;” you did.**
- **You did it; now YOU live with it!**

## Good News: You Have the Ability to Succeed!

- You are the “cream of the crop” – the best. Otherwise, you would NOT be in engineering.
- If you fail, it will be because you:
  - Do not focus.
  - Are lazy.
  - Have bad (ineffective) study habits.
- How do you gain the skills to “survive the university jungle?” We will cover such skills in lectures to come.
- Following are some “suggestions for success,” some of which we will cover more thoroughly later in ECS 1200.





# 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. They will help make you more proficient.**
  - **Well done, homework hones skills and also points to holes in your knowledge (a good reason to come to 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!**
- **We will come back to homework/study in a future lecture.**

## Getting There (Continued)

- **Be prepared:**
  - You will see most instructors a few hours/week. We cannot possibly teach you all course content unless you are prepared.
  - This means doing the homework problems and reading any assigned material!
  - Come to office hours when you need additional help.
- **Pay attention in class and take good notes.**
  - After class, go over notes and rewrite them so that they are as useful as possible. This is important, as you are required to TURN IN rewritten notes regularly for our 11 lectures!
  - By “making notes on the notes,” you reinforce your learning.
  - We will return to note taking in a future lecture.

## Getting There (Concluded)

- **Studying a text is NOT like reading for entertainment.**
  - **Highlight important material in the text to make it easier to find. Write in the margin, etc. to jog your memory about important topics.**
  - **There is NOTHING wrong in writing in a textbook. It is your property and as such, you should use it in the way that benefits you the most.**
  - **As mentioned above, do ALL homework readings!**
- **Finally, SELLING TEXTBOOKS IS EVIL! If you don't write in the text so that "It'll be worth more when I sell it back," you are a king-sized moron!**

# Time Management

- **Make a schedule, then follow it.**
- **Do NOT put off scheduled course-related items: homework, test study, reading, etc.**
- **Recreation should be a REWARD for university-related items that are completed!**
- **Limit distractions. Resist the seductive pull of a friend's visit, TV, playing the new Wii game, even going out to eat versus having a snack and continuing your study (make it a nutritious snack).**



# Aids in Learning

- **Teamwork: Fine if done right (you will work on teams in industry).**
  - **Do homework together (INDEPENDENTLY, then compare answers).**
  - **Studying together for tests is fine. Learn to bounce questions off each other, compare answers, debug wrong solutions together.**
  - **Be patient with study mates; ask them to do the same to you.**
- **Other Resources**
  - **Mentors – Upperclassmen can be a big help. A good way to meet upper class students is in student organizations (IEEE, SWE, SBE).**
  - **Tutors – Tutoring is available in various places: Math recitation sections (usually part of math courses), student organizations (SWE, IEEE).**
  - **References – There are many, e.g., ECSN and UTD libraries.**
  - **Course TA's – Your teaching assistants can be a great source of information. Graduate students know a lot!**
  - **Your Instructor – When all else fails, go to office hours. If you can't go to the regularly-scheduled office hours, arrange for a special appointment.**



## Other Aids to Success

- **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!). **More practically for the present, friends can be good study partners.**
- **Explore.** **Seek out new ideas and consider them.**
- **Learn to write and present well.** Being a clear writer and speaker will greatly enhance both college and business careers! (Examples)
- Practice being a logical thinker. **Be prepared to debate an issue when you think a proponent is uninformed, ignorant, or espousing untrue or toxic ideas.**
- **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.**

## More Etc....

- 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.
- **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.





## Finally...

- The text mentions “distinguishing yourself.” One of the best ways to do that is with **HIGH GRADES**. If you can’t do that, plan on how you can be unique. **For instance, if you like materials research, and think you might like to get into semiconductor manufacturing, take a double major in EE and Chemistry.**
- We mentioned friends earlier. Make friends inside and outside your professions. Friends are an inexhaustible source for energy in your life.
- **Be disciplined. FOCUS. All of us goof off occasionally, but in general, to get your BSEE/BSCS, etc., you must concentrate on your goal and move toward it relentlessly.**
- **(BUT) Do have a social life. Technologists don’t work ALL the time. (Just MOST of the time!)**