I am always amazed how many people come to college without the proper tools for success. Today I will share with you five things I believe every ECE should have.

1. **A laser printer.** This is the most expensive item on the list. Everyday I see people with the standard inkjet that came free with their computer. They are stuck buying new cartridges every hundred pages or so. I have only replaced my laser cartridge once in eight years and I go through a box of paper a year. Whether it is a not so short story your English professor wants printed out or a 50 page Micro report, a nice printer is a must.

2. **A TI-89 calculator.** This is a very controversial topic. I had a friend who refused to buy one because he was amazing at math. He would crunch all of the numbers in his head and would always integrate manually. However, if the teacher allows calculators, you are at a disadvantage without one. Some teachers have gone as far as to design their tests knowing the capabilities of the TI-89. As soon as you enter this great university purchase one, and use it on into your professional career. At my job no mission critical calculations were done by hand. They were always checked with Matlab or a graphing calculator.

3. **A nice pair of wire strippers.** The university will sell you the perfect package that contains a pair of wire strippers and a few other worthless products. Please note that these are the worst wire strippers on the planet earth. A mere $17.00 at Radio Shack will get you a pair of automatic wire strippers. If you take Introduction to CPE and Digital Design I, you will end up stripping more than 750 wires! This investment will save you time and your fingers.

4. **Nice office supplies.** Most people have this under control but it requires emphasis. You should go out and buy a nice stapler, a mini stapler, a nice mechanical pencil, tons of engineering paper, and a nice desk. Everything you turn in during college will require a stapler. If you have a nice one by your side this is never an issue. A mini in the pocket of your backpack assures you will always be prepared. Also, you might as well fork over $10 for a nice pencil. On average I fill five notebooks a semester with notes and countless packages of engineering paper, why do all of this writing with a crappy 10 cent pencil?

5. **A group of friends to study with.** High school may have been survivable alone, but college is a different beast. Look around your class and introduce yourself to others, preferably the really smart people. Most professors allow group work on the homework and plenty of classes have group projects. Multiple people can troubleshoot a whole lot better and also keep each other focused. When the next test comes along, you already have a good group of people to study with. Combined with a good coffee shop, a study group can go a long way towards your success.

George F. Eichinger III
Chair – IEEE @ VT Student Branch
IEEE HARDWARE TEAM 2005

The IEEE Hardware team is the main student project arm of the IEEE here at Virginia Tech. Every year, Region 3 of the IEEE holds a conference, called SouthEastCon, named so because Region 3 consists of states in the South East region of the USA. Every year, SouthEastCon has a student hardware design contest, pitting designs from the Universities and Colleges in the area against one another. These events always require the design of an autonomous robot.

Autonomous robots are robots that act entirely on their own; there is no human element controlling them. These robots are programmed with an artificial intelligence designed to accomplish a set of tasks, and then turned loose to complete those specific tasks for which it was designed. This year, the contest calls for a robot, no bigger than 6” X 6” X 8”, to play a capture the flag type game against another team’s robot. The playing surface is an 8’ by 4’ sheet of plywood, with 5 holes drilled in each 4’ by 4’ side. Each of these 10 holes contains steel balls, which are targets. The robots must go to the other side of the playing field, gather these targets, and return to the starting position.

This year, the Hardware team has decided to build its own custom microprocessor system based off of the popular PIC series of microprocessors. The processor will control all aspects of the robot, such as motor control, navigation, and target retrieval. We will be using servo motors for propulsion, and a sensor called a CMU2CAM for navigation. This camera will take a snapshot of the course in the beginning, do some image processing, and create a map of the course, which we will store in memory. Look for more hardware team updates in future newsletters.

Matt Boyle
IEEE Hardware Team Captain

ROBOTS THAT MONITOR THE ENVIRONMENT

On November 8th at 7:00, IEEE and SWE (The Society of Women Engineers) will be having their first joint-meeting. Dr. Stilwell will be giving a presentation on “Robots that Monitor the Environment.” Anyone with an interest in robotics or the environment is encouraged to attend. It is located in Brush Mountain in Squires. Any questions about the meeting or the presentation can be directed to Andrew Cormier (IEEE Vice Chair) at acormier@vt.edu. Not sure if you want to come? How about some FREE FOOD to settle the deal?
IEEE POOL TOURNAMENT

Enjoy playing pool? Then come out to the BreakZone on November 13th for the IEEE Hardware team Pool Tournament. Whether you’re a pro or just a novice, all are welcome! There will be nine ball and doubles straight pool for all levels of expertise. The prizes include singles: 1st prize cue over $100, 2nd cue over $50; doubles: 1st prize $50 gift certificate, 2nd prize $25 gift certificate. Drinks and snacks will be available. $5 entry fee per person. Register online at www.ieee.vt.edu. Play starts at 2PM.

GRADUATE ROUNDTABLE

Curious about graduate school? Stop by the IEEE Graduate student roundtable and get all the information you need to apply to any graduate school. Graduate students will be on hand to answer any questions regarding life as a grad student; professors will also be available to discuss the different options available at VT for grad school. Faculty and staff will be available to help with things such as filling out applications. The roundtable will take place on the 17th of November at 5:30pm in Randolph 129. Food will be provided.

FUN FRIDAY (NOV 5)

Every first Friday of the month, the IEEE hosts Fun Friday. For those of you who don’t know, Fun Friday is an IEEE event that serves lots of doughnuts to people who pass by the 3rd floor ECE student lounge in Whittemore hall. If doughnuts are not your thing, stop by for some juice or coffee, and remember this is all free. In the past we have had a maximum of 20 dozen doughnuts. We start serving at 8 and offer refreshments until early afternoon, but from personal experience I know that doughnuts are all gone much before that. So make sure you come out early and get your hands on some. Another excuse to wake up early on a Friday morning!!
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