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We have strong programs in environmental engineering, and we also have good programs in mitigation of hurricane damage and building code development. We have a great wind group in our civil engineering department. We have a high-quality materials department in civil engineering. Bringing all those faculty members and students together would make a lot of sense, and would allow us to look at the building environment in a much more comprehensive way.

Similarly, we have strength in transportation. A lot of transportation issues have serious environmental impact, so I think that bringing the transportation group closer with the environmental group, would really help. We would also like to bring our electrical engineering and computer science departments closer together including an emphasis in the computational engineering area as well.

What significance should people take away from the fact that you are the first female dean of the College of Engineering?

To be honest, this is the first job I have ever gotten in which no one, at least so far, has said to me that I got the job because I was a woman. Most of the comments are along the lines of, “It’s great that we’ve found somebody so qualified, who is also a woman.”

It’s my job to ensure a high quality education for all students, regardless of their gender, and to recruit the top talent, regardless of gender or race, but I certainly understand the importance of symbols. For a lot of women in our profession, there have traditionally not been that many role models. So, I see it as an opportunity to fill a need. I look forward to the day when appointing a woman administrator is not such a big deal, but to get there we are going to have to diversify the faculty ranks. The more role models we have, the easier it will be to attract more women and more people of color to academia.

In the latest edition of the college’s magazine, Florida Engineer, you say that after years of people saying you got your jobs because you are a woman, you finally decided, in a sense, that it’s true. What do you mean?

Every individual is different. I am sort of competitive by nature, but because of the times that I grew up in, and my family circumstances, I was encouraged to be more team-oriented and cognizant of the success of people around me, or at least the circumstances of people around me. That helped me tremendously because one thing I learned, to some extent at Stanford, but particularly at Bell Labs, is that if you really want to solve big, important problems, you are going to have to work with more than just your own lab. You’ve got to be able to collaborate with others, you have got to be able to be part of a team. It’s not always easy, but the success that you can achieve from doing that is much greater than what you can do on your own. That is where engineering is going as a profession, and it has been heading in that direction for some time. One of the misconceptions among a lot of our students, or potential students, is that engineering is an isolated, is a solitary profession. That’s just not true anymore, and I think if we can get the word out we may find it easier to attract more women to the profession.

What are you eager to tackle as dean?

We are one of the largest public engineering colleges in the country. We have a lot of very strong disciplines. What I would like to see us do now is to work together and address problems in a more interdisciplinary fashion than we have in the past. Not that we haven’t done interdisciplinary work, but now I would like to systematize it and change some of the administrative and planning structures in the college to reinforce that. For example, civil and coastal engineering and environmental engineering are two separate departments. We could create a division or a school of sustainable infrastructure and bring those two groups together in a joint strategic plan.

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How did you become interested in engineering?

I have always been interested in knowing how things work. I’ve always liked solving problems. If you put those two things together, engineering really becomes an obvious
After receiving your PhD, you returned to Bell Labs. What was your focus then?

I worked on compound semiconductors. It was a phenomenal place to work. At Bell Labs, rarely did you even know what the disciplinary background was of the person you were working with. You just knew that you had a goal you were trying to achieve, or a problem you were trying to solve, and it needed a team of people to do it. So, it was very entrepreneurial. You would go out and find the expertise that you needed and you’d all work together, and good things happened. (ed. note: At Bell, Abernathy helped develop a power amplification component that is now used in millions of wireless phones).

What brought you back into academia?

When I left grad school I wanted to go work in industry. I think part of the reason I didn’t choose to go into academia is that I just didn’t have the confidence for it. I couldn’t see myself competing for research funding, but after I had some experience and some successes, I gained a little confidence. After eight years, Bell Labs started to change because the financial model of the Bell system was changing and it became clear that if you wanted to do research under the modern paradigm, you were probably going to have to do it in academia. I met my husband at Bell Labs, and we were looking for two positions in academia. Florida offered both of us a position in the same department, and it’s worked out great.

I’ve continued working on compound semiconductors. I do synthesis, so I do molecular beam epitaxy and metalorganic chemical vapor deposition, which are common techniques for what are called three- or five compound semiconductors. These are things that are used in power devices, power electronics, high-speed communications.

What do you want the students at Florida to learn? What would you like to provide to them?

I’d like our students to be, of course, technically excellent. But also I think our students need to be leaders in their respective fields of study and their professional areas. To me, leadership means four things.

Certainly ethical practice is at the top of the list. American engineering is known for this. If we want to retain a place in the global engineering market, ethics has to be one of the cornerstones. From talking to employers who recruit Florida students, I’ve learned that they are concerned about maintaining American ethical standards as employees work globally. Every region of the globe has a different understanding of what constitutes ethical practice. And yet, U.S.-based companies, no matter where they operate, are bound by American laws, so they care deeply about hiring students who understand how to maintain ethical standards.

Second, entrepreneurial activity is critically important, and I think that’s an area in which the Stanford environment excels. More broadly, it’s another quality that distinguishes American engineering practice from others in the world.

Third is the ability to be innovative and creative. And working across interdisciplinary boundaries fosters innovation and creativity. When you bring different ways of looking at things together, you are much more likely to achieve an innovative solution. And finally, communication skills are obviously a very important part of leadership.

We in the United States have to figure out how we are going to compete in the global marketplace. Producing excellent engineers who are also capable of leading in their professions is one way to do that. To lead in a global economy, students must be able to work across a lot of boundaries and among different kinds of people. That’s what we need to foster in our students.

choice. At one point in my high school days I thought I wanted to go to medical school, but then when I got to college at MIT, I realized I really didn’t like organic chemistry that much, and I was very squeamish about needles and blood. Fortunately, I discovered that I really liked inorganic chemistry and solid state physics, and that’s kind of what led me to materials science.

While you were at MIT you did an internship at Bell Labs.

At that point I wasn’t planning to go to grad school. I thought, “get into the industry, get a job, make money,” but then I did a summer at Bell Labs and that changed me. Not only did it convince me that I wanted to do research, it convinced me I wanted to study electronic materials, and that’s what led me to Stanford, because Stanford had an excellent reputation and still does – in electronic materials.

When you were at Stanford, what did you study?

I worked on solar cells, and specifically on a technology called spray pyrolysis. It’s a cheap way to make large-area solar cells. We were making them out of a material called copper indium diselenide. My adviser was Clayton Bates, and I was working on a subcontract from SRI. It was a contract from what’s now called the National Renewable Energy Laboratory. This was in the early 1980s, right before the drop off in funding for solar energy.

One of the great things I learned about Stanford, that I hope to encourage here, is how beneficial it can be to have an academic program that allows you to cross over a lot of disciplines. As a grad student there I was not only allowed to, but encouraged to take classes from a lot of different disciplines. I learned that students in one department can easily work for faculty in a different department.