

AMERICAN SOCIETY OF MILITARY ENGINEERS

Good evening. It is a pleasure to speak to the American Society of Military Engineers and an honor to speak to so many men and women who have made a difference in the field of engineering.

Tonight, I've been invited to speak to you about one of my favorite subjects - the future of engineering at Georgia Tech. As is often the case however, I will take a bit of liberty with my charge, because I believe the future of engineering at Georgia Tech is integrally linked to the larger education of our engineering students and the larger issues that are circling around higher education in general.

In the past decade, many of the institutions in our country have been subjected to the pressures from societal change, globalization of our economy, the end of the cold war, and a new era of exposure in a distrustful media. Certainly those of you here know much about this. Higher education is now caught up in the wave of similar conditions, but we have been slow to recognize the forces that are driving the tides. STORY ABOUT DOG ON A NAIL.

Our research universities and their engineering educational programs within them have been affected by the globalization of industry and business, the changing demography of our citizenry, the mores of families and values transmitted to students, and the way in which our young people are taught to think and learn. What is particularly important to the future of Georgia Tech

is the steadily growing importance of technology on the day-to-day lives of all Americans.

Georgia Tech also recognizes the needs of businesses and industries who can only compete if they have employees who can work in teams, are adaptable, are resolute in the face of difficulty, understand ethics, understand the basics of many diverse fields, and at the same time are simply brighter than the others. We have to help produce graduates with these talents and this affects how we design our curricula for the future.

Yet another element where the game is changing is in the research arena. Federal government research funding, which fueled the amazing development of the modern research university, is shrinking and changing focus. In years past, our School of Engineering could depend on millions of dollars in research grants from the federal government. This funding source is being downsized and the targets are shifting. Related to this, we see industrial and corporate funding increasing for those who are able to adapt to this development. Power is shifting to those who can address issues of national competitiveness and team with government and industry.

Finally, students and parents have changed in the way they view the university. Hikes in tuition coupled with a competitive job market have caused students and parents to search out value in education and enroll in institutions that can offer them a practical academic experience that prepares them for the workplace. Nationwide in engineering, we have seen enrollments in undergraduate engineering programs decline by almost 20% over the past seven to eight years.

The conditions for the future are challenging. As we move into the 21st century some universities will find the means to address the issues we face and those will emerge the winners. Others will not and they will be the losers. I believe Georgia Tech is positioned to be one of the former... if, and this is a big if, if we make the necessary adjustments in our system, find the resources needed to let us sprint and not walk, get the skilled players we need to take us to the next level, and continue to emphasize the basics that make it all possible.

To accomplish our goals, we need to understand the context (the game plan), how change is coming, develop a strategy we all can believe in, and work as a team with ourselves and those we serve.

Through the years, we have built the foundation that is needed through a team of faculty, staff, students and alumni. This year's freshmen are examples of our blue chip recruiting process. They bring with them the highest average SAT score of any public university with a 1233 average score; they also ranked number one in the number of freshmen National Merit Scholars attending a public university. Our students maintain a hard working attitude - illustration, we have the largest voluntary co-op program in the country. I am encouraged by what I see in the rest of our team - alumni that are the most supportive of any public institution in the country; 40 faculty who have received NSF Young Investigator Awards; recognition by US News and World Report as the 3rd best buy in the country.

Although national engineering enrollment has dipped and many national engineering schools have seen reductions in research funding, Georgia Tech's College of Engineering continues to attract bright students, quality researchers, and research dollars. The College of Engineering is our biggest School: as of January of this year, of our 13,000 students at Georgia Tech, the College of Engineering counts 8,000 students. While enrollments are down nationally in engineering, our College has not shown reductions although there has been a small drop in numbers of applications. In research funding, although the national picture is gloomy, Georgia Tech and the College of Engineering are showing a remarkable increase in funding - up \$34 million from last years total at this time.

Nationally, we are recognized for our excellence. In 1994, twelve of our College of Engineering departments were ranked among the nation's best in U.S. News & World Report's listing of the nation's best graduate programs. ISYE, No 1; AE, No 5; Biomed, No 8; ME, No 7; CE, No 7, and so on.

What is the reason for our success in the face of a gloomy national picture for engineering? There is no pat answer, but a focus on quality, a careful reading of the trends of the future, our location in Atlanta and Georgia, maintaining a base in our traditions, and a willingness to take chances. While Georgia Tech has respected its traditions, it has not played a pat hand but has moved smartly into interdisciplinary approaches to teaching and research. We are now leaders in manufacturing, computing/communications, and new high tech programs in traditional industries like pulp and paper and textiles.

The national trend towards increased funding from industry and business is benefitting Tech's historical bent towards applied and practical research.

We have the seventy largest industrial research funding base in the country and fully thirty percent of our research funding comes from industry, and there is evidence that is growing. By meeting the needs of business, industry, government, and students, the College of Engineering continues to be the fuel that drives Georgia Tech. A perfect example of vision and foresight rewarded is the new Packaging Research Center, which in 1994 was awarded an Engineering Research Center designation by the National Science Foundation. This center fills an industry need - 35 companies are partners in this venture. New venture in computing/communications also exemplify this trend. Cite work with on-line media, GCATT. New Center for Entrepreneurship and New Ventures Management.

Georgia Tech has also done an excellent job understanding how important the changing demographics of the country are and in recruiting minorities and women. We are ranked first in the nation for the total number of degrees awarded to underrepresented minorities. In the nationally recognized GEM program that supports African American students for graduate study, we are first in awards by a factor of two over our closest competitor (Stanford). We are also number one in numbers of engineering degrees awarded to women and today our engineering and total enrollments are almost 30% women.

But being ahead in the sixth inning won't do us any good at all if we're not still ahead in the ninth or even the twelfth inning. That's where strategy

comes in. Since I arrived at Georgia Tech, I've spent a lot of time working with faculty and staff to formulate a plan and vision for the future.

How are we going to achieve our vision of becoming the first southern technological university to achieve true national and international stature? Here are some of the issues and opportunities facing Georgia Tech as we move toward the 21st century — and some of our strategies for moving forward and hitting the ball out of the park.

- Build on our historical and institutional commitment to serve students and state. Thomas Jefferson once said of Virginia: "Our biggest strengths are our traditions. Our biggest weaknesses are also our traditions." We must therefore be careful as we shore up our future — and build on the traditions that have made us what we are today, such as commitment to technology and engineering, learning by doing, and academic excellence. However, we must keep our eyes open for strategies and new technologies that can likewise give us a strong tomorrow.

- Recognize mega-trends and be adaptive:
 - 1.) Electronic teaching and learning technology
 - 2.) Interdisciplinary thrusts – telemedicine and the Packaging Research Center

- Take full advantage of the Olympic opportunity. (Mention Army influence in Bill Ray, Bill Miller and Fred Dobler ??)

- 1). Single largest building project in the school's history**
- 2). Futurenet, campus cable**
- 3). Expand the Institute's national and international reputation and sphere of influence including expanding the programs at Georgia Tech Lorraine.**

- Continue to expand our links to our industrial and business partners.**
- Last, we must address the need for an improved resource base. To be among the best nationally prominent universities, Georgia Tech's fundamental academic core must be enhanced and improved. An example of this is our need for more faculty will help us achieve our goal.**

Those are some of the more salient points of our strategies to achieve true national stature. I'd now like to close with a quote from that immortal sports figure, Yogi Berra. In his homespun way, he spoke of the importance of vision. He said: "If you don't know where you are going, you might wind up someplace else."

1995 and 1996 will be important years for Georgia Tech. Our visibility will be higher than it has ever been — and it is our goal to make the most of it.

Thank you.

Questions?