

## COLLEGE OF ENGINEERING

If there were only one word to describe the College of Engineering at Florida International University it would be **OPPORTUNITY**. Florida International University has long recognized that many, if not most, of the region's young people would have difficulty obtaining an engineering education if a public engineering program were available. Since 1982, the College of Engineering has provided this educational opportunity for thousands of young men and women to enter the profession of engineering.

In addition to its educational mission, the College of Engineering has taken a leadership role in research. Florida International University ranks as one of the State's leaders in engineering research. Through the outstanding efforts of the College's research centers, including the Hemispheric Center for Environmental Technology, the Lehman Transportation Center, the Center for Cardiovascular Engineering, the Future Aerospace Technology Center and the Center for Advanced Technology, the College of Engineering is responsible for almost half the sponsored research awarded to the University.

Florida International University recognizes that for the nation to maintain its current competitive advantage in the global marketplace, the technical workforce must be more inclusive and more engineering talent must be attracted from traditionally underrepresented groups. The College of Engineering plays a most important role in preparing this critical technical workforce of the future by directing a major portion of its efforts toward attracting the youth from underrepresented groups into engineering and educating them for success in the profession.

The College of Engineering awards more engineering degrees to Hispanics, a nationally underrepresented group in all fields of engineering, than any other institution in the country. Although California and Texas still lead the nation with the largest Hispanic population, Florida International University graduates more Hispanic engineers than any of the educational institutions in those states. The Engineering Workforce Commission of the Association of American Engineering Societies, Inc. ranks Florida International University first in *Undergraduate Minority Engineering Enrollment* and in *Undergraduate Hispanic Engineering Enrollment*, and second in *Graduate Hispanic Engineering Enrollment*. The University also ranks first in *Bachelor's Degrees Awarded to Hispanics in Engineering*.

As Florida International University advances toward its place as a *Top, Public Urban, Research University*, the vision for the College of Engineering is focused on excellence in education and research. As we enter the new millennium, the College of Engineering will play an increasingly important role as a principal hemispheric center for engineering education and research, professional development, and the development of new technologies. With new or expanding programs in biomedical engineering, transportation, telecommunications, software engineering, environmental engineering, manufacturing, engineering management, computer engineering, information technologies, aviation and bio-chemical processing, the College will become an even more critical cog in the hub of regional economic development. Florida

International University is, and will continue to be a strong partner in South Florida's effort to build a leading economic, transportation and technology center on the Atlantic rim.

Many opportunities await those who would join the College of Engineering in its efforts to prepare the regional and global community for a better tomorrow. The College is committed to meet the educational needs of those striving to prepare themselves for the technological challenges of the future; the College is committed to assist the community in maintaining a technologically competitive workforce; and the College is committed to maintain a level of excellence in research that supports the regional growth of technology dependent industries. The commitments have been made and the challenges are there. The opportunity to make change is at hand. Consider joining the College of Engineering in our effort to get the job done.

## **The Need for Private Support**

Ironically, at the very moment in time when it is most crucial that our future engineering professionals be prepared to successfully compete in the marketplace, the resources needed to support higher education, specifically those associated with technology fields, are declining throughout the state and the nation. The role of public universities has drastically changed from *state supported* to *state assisted*.

Just as public funds find their way to private institutions in the form of financial aid, research grants, and tuition vouchers, public universities depend on private support for a significant portion of their programs. In fact, state funds provide less than 50 percent of the operating budgets for many American public universities.

While public and private institutions have become more alike in the funding, they remain remarkably different in the profile of their students. Public universities continue to be the only viable choice for millions of American man and women seeking lifelong benefits that only a college education can provide.

## **Funding Excellence Through Private Support**

What do all the nation's great universities have in common? Each has amassed a substantial endowment to provide a reliable source of annual income for quality programs and scholarships, and each has benefited from private funding in support of program excellence above and beyond state and federal funding.

**Preparing engineers, through education and research,  
to meet the challenges of a global economy is the goal of  
the College of Engineering**

**The plan is in place**

**Your support is needed to make this a reality**

## **FUNDING PRIORITIES**

### *Six Areas of Strategic Importance*

The College of Engineering, as part of *The Campaign for FIU*, is embarking on an effort to lay the groundwork for the technical leadership of the new millenium with a commitment to excellence and service that focuses on six areas of strategic importance.

#### **ENDOWED DISTINGUISHED CHAIRS AND PROFESSORSHIPS**

In its very short history, the College has established a solid academic and research foundation. Its next step is to evolve a number of areas of expertise and position these for national recognition. To accomplish this, the College needs the leverage offered by endowed chairs and professorships. Such prestigious faculty appointments create a legacy associated with outstanding leaders for generations to come.

The College is not alone in this mission. Many other institutions searching for the same faculty talent, and just on the basis of state funding alone it is impossible to compete with the attractive offers more established institutions make. To recruit prominent faculty and to retain those who demonstrate potential, the College must be able to offer prestigious faculty appointments and the benefits that these bring.

#### **GRADUATE STUDENT FELLOWSHIPS**

The high starting salary levels the private sector is offering to recent engineering graduates and a strong economy are causing an alarming decline in engineering graduate school enrollment and eroding the professional development of the workforce of the future. This will have a catastrophic impact on the nation's ability to compete in research and development.

The undergraduate degree, limited to 128 credits, has become the prevalent engineering education and very few engineers pursue and complete graduate education. Without the specialization and focus of graduate education, engineering professionals lack the requisite skills to perform high level research and development activity. Companies requiring a workforce with these advanced skills will be competing for a very small population of professionals and paying top dollar for it. The lack of advanced degrees will weaken the intellectual capital of the nation, cause an increase in the import of professionals and the export of work.

Graduate fellowships are the only means to ensure professional advancement of the nation's workforce and the success of its economy. Graduate fellowships to cover tuition, books, room and board, and a research stipend will encourage engineers to pursue and complete a graduate education. Graduate fellowships will guarantee a competitive work force and a strong economy.

In the College of Engineering graduate fellowships do much more than that! They also contribute to diversity of the workforce of the future by providing education opportunities to ethnic groups traditionally underrepresented in the engineering workforce.

### **DISTINGUISHED UNDERGRADUATE SCHOLARSHIPS**

Regardless of the academic standing, more students than ever require financial assistance to complete a college education. Many outstanding young man and women at FIU find that state supported scholarships for academic excellence barely cover the costs of attending college. Many have no choice but to resort to loans, creating a financial burden as their careers begin. Others take part-time jobs, drawing attention away from their studies and risking their scholarships, to ease the financial crunch.

In support of a scholarship program for academic excellence, The College has created a matching program for *Distinguished Undergraduate Scholarships in Engineering*. The goal of the program is to establish a \$1 million endowment to fund a number of full scholarships in perpetuity. Gifts to this program will receive a minimum of 50% match. The scholarships established by this fund will carry the donor's name. These full scholarships will cover tuition, books, room, and board, and enable the College to and recruit outstanding young men and women who deserve the opportunity to concentrate in an education.

### **TECHNICAL OPPORTUNITIES FOR UNDERREPRESENTED GROUPS**

As our nation focuses on the evolution of a diverse workforce, it is crucial that we enable more underrepresented students to pursue a career in engineering. These efforts will allow our society to benefit from a more inclusive workforce and blur socio-economic lines that sabotage economic development. Programs to promote engineering, a typically white male profession, among groups traditionally underrepresented in the profession and scholarship opportunities to attract these groups into the field are needed more than ever.

The College of Engineering already enrolls and graduates more Hispanic engineers than any other institution in the continental U.S. as the result of very successful K-12 programs with the local schools. The College is also the second largest producer of African-Americans engineers in the State of Florida.

Programs to address the shortage of women in the engineering profession are also being developed by the College. These programs will promote engineering among young women, and specifically target those within minority groups.

Scholarship opportunities to bridge these programs from high schools to college are essential to the diverse workforce that will assure the nation's economic success.

### **STUDENT OPPORTUNITY FUND**

Extracurricular activities for students provide an added margin of excellence to the engineering educational experience and encourage development of leadership and entrepreneurial skills. Participating in inter-collegiate competitions s by building race cars or robots, developing software based solutions to a problem, or constructing a concrete canoe are just a few of the

activities the students in the College of engineering are involved in. Unfortunately, financial support is a constant restriction for many activities, forcing students to spend time fund raising when they should be concentrating on learning engineering, leadership, and teamwork concepts.

### **THE ENGINEERING EQUIPMENT FUND**

The Engineering Equipment Fund will allow us to take advantage of special offers to purchase equipment at significant discounts when matching funds are required. The fund will be used to leverage grants, as start-up packages to assist new faculty in setting up labs, and to support research initiation.

### **ENTREPRENEURIAL ENGINEERING PROGRAM FUND**

Building on the premise that the future rests with challenging and educating and preparing college students, the College of Engineering is inaugurating a program in Entrepreneurial Engineering. This program offers a course and invites distinguished entrepreneurs and business pioneers to campus to share their insights and experiences with students. Focusing on the components and challenges of building a successful start-up company, the course culminates with students writing a business plan they present at a mini-venture fair. The goal of the program is to develop and foster entrepreneurial spirit in engineering by providing an overview of the business skills and environment the traditional engineering curriculum lacks. The Entrepreneurial Engineering Program Fund will support student activities, projects, and a lecture series.