

## Student Projects Benefit Special Olympics



Industrial engineering students worked with the Special Olympics logistics team to organize supply distribution from a central warehouse in Raleigh to smaller holding sites and venues throughout the Triangle for the 1999 Special Olympics World Games held June 26 through July 4.

During the 1999 Special Olympics World Games, the thousands of athletes and volunteers had a group of NC State industrial engineering students to thank for the availability of water, ice, soft drinks, snacks and other supplies. The industrial engineering senior design students — who usually charge companies \$2,000 or more for each project — volunteered to design the logistics for supplying all of the sites for the '99 Games to be held in the Triangle area.

The challenge for one team was to move hundreds of thousands of pounds of supplies from the central distribution area to strategically placed smaller distribution

compounds around the Triangle area. The challenge for the other team was to move all of the supplies from the smaller compounds to each of the sporting venues in the area — more than 150 different sites.

In these two projects, the students applied their industrial engineering principles to a real-world problem — how to move everything necessary in a highly populated area using volunteer drivers who are often unfamiliar with the roads.

“The organizers of the 1999 Special Olympics World Games called to see if we could help with the logistics of moving the supplies for the entire area — a monumental task,” said Clarence Smith, assistant head of the Department of Industrial Engineering and instructor for the senior design class. “Two groups of our senior design class decided to take on the challenge.

“What made these two projects so impressive was the sheer volume of material that had to be moved. In a very short time frame, the organizers needed to be able to distribute 40 truckloads of ice; sheets and blankets for 7,000 athletes and their coaches; and more than one million bottles of water and soft drinks, just to name a couple of the items.”

The two teams of students, with their project adviser, Thom Hodgson, the James T. Ryan Professor of Industrial Engineering, began work on Special Olympics projects early in the spring semester.

## Miniature Heart Sensors Aid Research

What could a heart smaller than a pencil eraser have to do with preventing human heart problems? At NC State and UNC-CH, tiny hearts could mean a big improvement in the time it takes to study treatments for heart defects and disease.

NC State researchers, Troy Nagle, professor of electrical and computer engineering, and Jason Fiering, research associate, are creating very small flexible heart sensor arrays for use on mouse hearts. The arrays are carefully arranged electrical sensors that measure electrical wave fronts on the heart's surface.

The tiny sensor arrays from NC State will help Timothy Johnson, associate professor of

biomedical engineering and medicine at UNC-CH, and Wayne Cascio, associate professor of medicine at UNC-CH, study how the electrical impulses of the heartbeat spread through the heart and how the electrical activity is changed by medications and disease.

The researchers use a miniature heart-lung machine to supply blood to the tiny, isolated mouse hearts. The machine allows complete access to the heart for study and maintains the working heart in excellent condition for long periods of time.

“Traditionally, cardiac research has been conducted on dog or pig hearts,” says Nagle, who also holds a degree in

medicine. “We have worked with researchers at Duke University to develop large sensor arrays for the study of the larger hearts. The sensor arrays designed for pig hearts are typically 120 microns thick — a human hair is about 100 microns thick. The arrays we are designing for the mouse hearts are much thinner — around 20 microns, about one-fifth the diameter of a human hair. At this thickness, the material that supports the sensor array is about the consistency of plastic wrap.”

Nagle explains that the challenge is to create a sensor array that is tiny enough to fit the small hearts, flexible

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The first team spent hours driving the roads of Raleigh, Durham, Cary and Chapel Hill, measuring distances from the main distribution point to each of the small holding compounds.

"We used maps and a CAD program to design the routes for drivers to deliver the supplies from the main warehouse to each compound," said Chip Townsend, a senior in industrial design and member of the first team. "A lot of the work was driving around, finding the best route and finding alternative routes for each delivery. Each route package that we designed included specific instructions with landmarks, estimated drive times and mileage between the points."

Once all of the supplies were delivered to the smaller compounds from the main warehouse, they had to be sorted and stored or distributed to each of the sporting venues in the area. Coordinating that effort was the job of the second team of students.

"Each sporting venue was supplied from one of the five compounds located strategically across the Triangle area," said Tanya Rushing, industrial engineering senior and member of the second team. "One example was the compound for Durham located at Hillside High School. We visited the site, measured it and took into consideration how many refrigeration units we needed, what other items would be stored there, even the flow of garbage and recyclables from each venue."

With all that in mind, we designed the floor plan for each individual compound."

The students also designed the routes for deliveries to each of 24 competition and non-competition venues from each of the supply compounds.

The design course is the capstone course for students majoring in industrial engineering at NC State University. In the class, groups of students take on projects submitted by and funded by business and industry to put their years of classroom learning into practice before graduating. The Department of Industrial Engineering was among the first in the nation to offer a senior design capstone course to its students beginning in 1973.

"Typically these senior design projects are guided by a

faculty adviser and sponsored by a company — basically the company covers the expenses — but we decided that this Special Olympics project could be done at no cost to the organizers. The department and the students felt strongly about donating their time and resources, something we have rarely done in the history of our senior design course," said Smith.

"The students certainly have met the challenge," Smith noted, after the project proved successful. "The real test came on opening day of the '99 Games. The supply of ice and water for the opening ceremonies depended on how well these students had done their homework."

## College Honors 1999 Distinguished Engineering Alumni

The College of Engineering has named Glenn E. Futrell of Manteo, Franklin D. Hart of Cary and Larry K. Monteith of Morrisville as its 1999 Distinguished Engineering Alumnus Award winners.

Futrell (BSCE '63, MSCE '65), a native of Wayne County, is the developer and managing partner of the Pirate's Cove Project in Manteo.

He began his career as a staff engineer for Law Engineering and Testing Company of Charlotte and was soon promoted. In 1973, he formed Soil & Material Engineers (S&ME), one of the most successful engineering firms in the US.

An active alumnus, he has been a member of the NC Engineering Foundation's Board of Directors since 1990 and served as president of the board in 1996-97. He has been a strong advocate for the College and University and an important solicitor for, and generous contributor to, the Campaign for NC State Students.



Distinguished Alumni (left to right) are Glen Futrell, Larry Monteith and Frank Hart.

Hart (BSME '59, MSME '61, PhDME '65), a native of Angier, recently retired from his position as president and CEO of MCNC.

He was a professor of mechanical engineering and established the Center for Acoustical Studies at NC State. His research team's development of the "Gorilla Goal" brought recognition among basketball fans.

He served as associate dean of engineering research programs, vice chancellor for research, interim provost and provost for NC State. He is a recipient of NC State's Holladay Medal for Excellence.

Monteith (BSEE '60, NC State, MSEE '62, PhDEE '65, Duke), a native of Bryson City, is chancellor emeritus of NC State.

Monteith was a professor then head of electrical engineering and dean of the College. He served as interim chancellor and chancellor of NC State and is currently involved with the Kenan Institute for Engineering, Technology and Science and the First Year College.

# Notes

- B. Jayant **Baliga**, Distinguished University Professor of Electrical Engineering and director of the Power Semiconductor Research Center, received the 1998 J.J. Ebers Award from the Electron Device Society of IEEE. Previously, Baliga received the O. Max Gardner Award, the UNC system's highest honor.
- Two faculty members recently received Faculty Early Career Development (CAREER) Awards from NSF: Jan **Genzer**, chemical engineering, and Injong **Rhee**, computer science.
- Shu-Cherng **Fang** was presented the IBM Global Partnership Award.
- Wentai **Liu** received the 1999 Alcoa Foundation Distinguished Engineering Research Award, and Gregory N. **Parsons** received the 1999 Alcoa Foundation Engineering Research Achievement Award.
- Dean Nino A. **Masnari** has been designated Distinguished Professor of Electrical and Computer Engineering.
- Morton A. **Barlaz** and S. Ranji **Ranjithan** received an NSF/Lucent Technologies Industrial Ecology Research Fellowship for helping industry design processes that prevent pollution and create environmentally friendly products.
- Ndaoni **Chokani** was selected to participate in the 1999 Ralph R. Teeter Award Program sponsored by SAE.
- Hassan A. **Hassan** received the 1999 Thermophysics Award by the American Institute of Aeronautics and Astronautics.
- The American Nuclear Society (ANS) has published a new textbook written by Robert **Mayo**. *Introduction to Nuclear Concepts for Engineers* is expected to become the primary text for sophomore nuclear engineering students.
- James R. **Wilson** has been named head of the Department of Industrial Engineering, effective July 1. He succeeds Stephen **Roberts**.
- Engineering students who won awards for their research at the Eighth Annual Undergraduate Research Symposium held at NC State are Susan M. **Brandenburg**, chemical engineering; Tagbo C. **Ekwueme-Okoli**, electrical and computer engineering; Thilynn **Gallen**, materials science and engineering; and Melvin B. **McLaurin**, materials science and engineering.
- The College awarded degrees to the first three graduating North Carolina Alliance for Minority Participation (NCAMP) Scholars this May. Taunya Renee **Bailey** of Raleigh received a BS in biological engineering; Michael Leigh **Laurenceau** of Fayetteville received a BS in computer science, and Kontay Vashon **Sexton** of Greensboro received a BS in mechanical engineering.
- Winners of the 1999 Award for Excellence for the College of Engineering are Susan **Fenn**, Ergonomics Resource Center; Harold **Morton**, electrical and computer engineering; and Larry **Shirley**, Industrial Extension Service.
- John G. **Gilligan**, associate dean for research and graduate programs, was selected by Gov. James B. Hunt Jr. to serve on the NC Mining Commission.
- Kimley-Horn & Associates Inc., an engineering consulting firm in Cary, holds a Consulting Experience Day for NC State students each September. The event is open to juniors and seniors interested in civil and environmental engineering consulting. This past year, 27 NC State students toured the firm's facilities and attended presentations by Kimley-Horn engineers. For more information, call Nina MacDonald, (919) 677-2000.
- From pipe-crawling robots to light-seeking "bugbots," the Talley Student Center was humming with activity April 29. Students in Electrical and Computer Engineering's senior design class displayed their projects at the biannual ECE Design Day. Professors, industry representatives and parents viewed the students' engineering projects designed to address real-world engineering challenges.
- DuPont recently announced that it will build a fluoropolymers plant in Fayetteville, NC, using supercritical CO<sub>2</sub> as a solvent. This technology was developed by professor Joseph **DeSimone** and his students. DeSimone is the William R. Kenan Jr. Distinguished Professor of Chemistry (UNC-CH) and Chemical Engineering (NC State), and he is co-director, along with Ruben **Carbonell** (NC State), of one of the newest research centers in the College of Engineering at NC State, the Kenan Center for the Utilization of CO<sub>2</sub> in Manufacturing. The DuPont investment in fluoropolymer facilities that will be based on DeSimone's technology will be up to \$275 million.

## NC State, UNC-A Offer Mechatronics Degree

NC State provides the engineering professors, and UNC-Asheville provides the classrooms and core courses in a new program that allows students in western NC to earn a BS in engineering from NC State without moving to Raleigh.

Classes for this distance education program will be offered during evening hours. The mechatronics degree is a combination of information technology and mechanical, electrical and computer engineering.

A pioneer in distance education technologies, NC State's College of Engineering was the first in the state to offer an on-line, real-time interactive classroom using Internet conferencing technology for distance education, in the fall of 1996. UNC-A was the site of the first remote Internet "virtual classroom." NC State has expanded the sites, offering the Internet classes to include Lenior Community College and UNC-Wilmington.

Send address corrections for this newsletter to: Supervisor, Biographical Processing, Advancement Services, Box 7501, NC State University, Raleigh, NC 27695, or (800) NCS-ALUM.

# Bottomley Helps Women Succeed in Engineering

Laura Bottomley can fill a room with enthusiasm. In front of a classroom, she piques students' curiosity. Corks pop, foamy liquids spew, propellers whiz through the air, fluorescent bulbs glow in midair, and students wave their hands to volunteer and ask questions. Bottomley has created this scenario numerous times during her visits to grade schools, middle schools and high schools in an effort to interest students in engineering and the sciences.

Bottomley is the coordinator for the Women in Engineering Program in the College of Engineering, a program created in 1997 to organize efforts to support women engineering students.

When she introduces herself to a crowd of students, she says, "My job is to help young women become interested in and achieve a career in engineering, but I like boys, too." During her presentation, she includes all of the students in the demonstrations.

"I want to excite young students about engineering and the sciences," says Bottomley. "I want them to understand that this can be fun work. I want them to get involved in the sciences."

Bottomley wants her colleagues and engineering students to get involved, too. She routinely takes students and engineering faculty to her presentations.

"I try to take women and minority engineers with me to the presentations so that they can be role models for the students," says Bottomley. "I can stand up and tell a group of students that they can be engineers, but if all they see are white male engineers then they grow up thinking that all engineers look like that. When I take women engineering students or women and minority faculty members with me, the students see that engineers look just like them. It sets an example for them to follow."

The presentations she makes to primary, elementary and high school students are just one part of her job in the College of Engineering. In addition to her K-12 recruiting presentations, conducted in conjunction with the college recruiting program, Bottomley serves as an adviser to women students, a coordinator of women's programs and an adviser to the NC State chapter of the Society of Women Engineers.

Since joining the College in August 1997, she has held focus groups to find out the differences in how women engineering students learn, how they perceive themselves in engineering classes, and how to help them overcome some of the difficulties encountered because of cultural or perceived differences. She counsels women engineering students on how to cope with classes and pressures.

Bottomley is a constant role model for the students, an example that women can succeed in engineering classes and obtain an engineering degree. She holds a PhD in electrical and computer engineering from NC State, and she worked for Bell Labs after receiving her master's from VPI. She also has



Bottomley (center) uses two audience volunteers and a fluorescent bulb to demonstrate energy fields to a group of middle school students.

consulted for the EPA, Ericsson, IBM and Martin Marietta. She has used her own experiences to develop the Women in Engineering Program.

"The biggest challenge I face in my job is resistance from the women students. They tend to discount their experiences and try not to identify themselves as different from their male counterparts. I don't think they recognize that some of the difficulties they face might have to do with gender. Those of us who are female faculty members can look back over the years and know for a fact that many of their experiences are gender-based. So to avoid having the women students feel that they are being treated

differently from the men, I have had to learn how to help without appearing to help."

Bottomley has initiated several programs for women students. Some, like Bottomley's e-mail mentoring program with industry, are new efforts she has piloted this year. The e-mail mentoring program allows professional engineers working in industry to interact with students by way of e-mail. They can answer questions, help students think through career choices and generally serve as role models for students.

Bottomley credits the success of the Women in Engineering Program to cooperation and team work in the Office of Academic Affairs and to the volunteer work of Sara Washburn, a senior in electrical engineering.

"I could not have accomplished all that I have without the help of my colleagues here in the Office of Academic Affairs. They are great team members who look out for me and support this program completely," says Bottomley. "And I couldn't have had this success without Sara Washburn. She has donated countless hours to help with demonstrations, mentoring programs and general office work. She has been a lifesaver this past year."

Bottomley's plans for the next few years include expanding the peer mentoring program to include a majority of women students, offering the e-mail mentoring program to all students in the College, and continuing to recruit young students to engineering and the sciences.

"Even though I want to expand the scope of the programs, I want to keep them low impact; one of the biggest problems our students have is that they are so busy — they have so much work to do," says Bottomley. "But I also want our upperclass women students to feel a responsibility toward their underclass peers, to get them to realize that they have much experience and knowledge they can share and to engender in them some sense of responsibility for that. This effort to instill responsibility is done quite deliberately — not just to have a program succeed but to try to build in our students a responsibility for one another's success. I believe that is something that all students can benefit from here at the University."

enough to withstand the rapid beating of mouse hearts — about 350 beats per minute — and strong enough to carry the numerous cables and wires that deliver the information from the sensors to the computers. In the beginning, the research team used rubber castings of mouse and rat hearts to approximate the size and shape of the hearts. Some are no larger than a water droplet. Recently, they have been using real hearts and have found handling the delicate tissues to be quite a challenge.

The challenge may well be worth the effort. Molecular biologists are now able to engineer mice and rats with specific genetic traits or conditions, giving researchers a new and powerful tool to study mechanisms of disease. The NC State and UNC-CH researchers are hopeful that the use of these new genetic models in conjunction with their experimental technique will provide new insights into the cause of disease and treatment strategies that will benefit humans.

“The advantage to creating sensor arrays for mouse hearts is the ability to manipulate the genetic makeup to create a specific condition for study,” says Johnson. “In the larger hearts, this is not possible because transgenic or knockout animals are not available in larger species.

“The genetically engineered mouse hearts would significantly reduce research time since mice reproduce more quickly than dogs or pigs. Using mice, a generation of study will take less than two months. The same generation in dogs or pigs would take more than a year.”

## Professor's Estate Leaves \$1.5M



**Matthews**

The estate of N.F.J. “Sy” Matthews, professor emeritus of electrical and computer engineering at NC State University, has given approximately \$1.5 million in deferred gifts to the College of Engineering. Matthews and his wife, Betty, made arrangements for the gift prior to his death on April 18 of this year. The gift will fund merit scholarships in electrical and computer engineering. Recently, the College

dedicated the N.F.J. Matthews Student Study Center, in Daniels Hall, at a ribbon-cutting ceremony in his honor.

A native of Clinton, Matthews joined the NC State faculty in 1964. He earned the admiration and respect of his colleagues and students through his dedication to teaching, research and service to the University and the community. He received several teaching awards and was named an Alumni Distinguished Professor in 1992.

Matthews’ research aimed at developing a unified field theory. He published the principal results of his 31-year research effort in a monograph, *Unification of Electromagnetism, Kinematics, and Gravitation*, in April. The theory he developed could reveal the internal structure of electrons and other elementary particles.

Matthews received his BSE and MSE in mathematics from George Washington University in 1957 and 1959. He received his master’s and doctoral degrees in electrical engineering from Princeton University in 1961 and 1964.

Once Nagle and Fiering have created the mouse-sized sensor array, Johnson and Cascio will use this new technology to study the electrical behavior of the mouse heart. The goal of these early studies will be to characterize the electrical behavior of the mouse heart and place it in the context of the information available on the electrical behavior of dog and pig hearts.

“The possibility of using mouse and rat hearts in cardiac research gives us many new opportunities,” says Nagle. “The development of transgenic mice adds important capabilities and enables us to conduct more specific research.”

If the research is successful, the goal of the NC State/UNC-CH team is to eventually become one of the National Institutes of Health’s (NIH) Research Resources — a nationwide series of laboratories that supply specific technology to researchers — and supply the tiny flexible heart sensor arrays to cardiac researchers across the nation. The NIH, through its research resource program, provides funding to support the development and fabrication of the technology of wide appeal to the medical research community. The sensor array research conducted by Nagle, Fiering, Johnson and Cascio is currently supported by a two-year NIH grant.

At the end of their first year of research, the team is close to having a workable prototype for testing. A few final design modifications are underway.

## Mini Baja Car Places High



Engineering and design students at NC State had a very successful showing at the Midwest Mini Baja competition held near Dayton, Ohio, in June.

The students designed and built a Mini Baja car for the competition, creating a vehicle that placed first in five of the twelve categories of the competition, including first in top speed, acceleration, hill climbing, appearance and ergonomics. The team placed second in structural integrity and serviceability. An accident that broke a suspension arm during the endurance race forced the team out of first place for the overall points. The team ended the weekend in fifteenth place overall out of a field of 73 competitors.

## Save the Date for Tailgate!

**Engineering Tailgate '99** is October 9, to coincide with the Clemson football game. Watch your mailbox for more information. See you there!

## Engineering Foundation Names New Officers, Board Members

The North Carolina Engineering Foundation (NCEF) has elected James M. Davis Jr. as 1999 president. Davis, of West End, NC, a 1958 mechanical engineering graduate of NC State, is a retired senior vice president of power operations at Carolina Power & Light Company. Newly elected vice presidents of the board are A. Fred Gant of Raleigh; C. Robert Rhodes of Greensboro, partner, Rhodes, Coats & Bennett; and Craig M. Wardlaw of Charlotte, executive vice president, Corporate Investments, NationsBank Corporate Center.

Joining the NCEF board of directors for a four-year term are Jeffery A. Buffo, of Smyrna, GA, manufacturing manager, Evenflo Company Inc.; E.O. Ferrell III of Charlotte, senior vice president, Electric Distribution, Duke Energy Corp.; Berry G. Jenkins Jr. of Raleigh, director, Highway Heavy Division of Carolinas AGC Inc.; and Gayle Seawell Lanier of Raleigh, director, Next Generation, Nortel Networks.

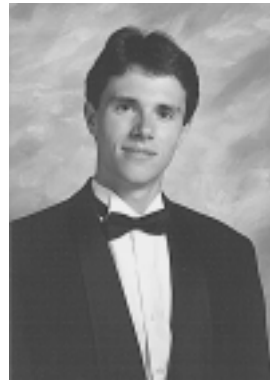
Founded in 1944, the NCEF is the fund-raising arm of the NC State University College of Engineering. The foundation raises and manages funds to support scholarships and teaching, research and outreach activities in the college. Members of the NCEF Board of Directors are volunteers.

## Meet the Engineering Foundation Staff



Foundation staff members are (left to right) Kelly Porter, Assistant Director of Departmental Development; Debbie Moon, Administrative Secretary; Gwen Bell, Assistant to the Director; Ed Hand, Associate Director of Development; and Ben Hughes, Executive Director of Development and College Relations and Executive Director, NC Engineering Foundation, Inc.

## Gentry Receives Angelo Scholarship



**Gentry**

Joshua W. Gentry of Kernersville, NC, has been selected to receive an Ernest James and Ethel Hudgins Angelo Scholarship at North Carolina State University. Gentry is the third recipient of an Angelo scholarship.

Dr. E. James Angelo Jr. and his brother, William E. Angelo, established the scholarship in memory of their late parents. Recipients must be from Forsyth County, NC, and demonstrate an interest in the environment and pursue an engineering degree that will give them

the opportunity to work to protect the environment.

Gentry is the son of Mr. and Mrs. Granville W. Gentry of Kernersville, NC. He will graduate from East Forsyth High School this spring. An Eagle Scout, he is a North Carolina High School Athletic Association Scholar Athlete, a Crosby Scholar and a National Honor Society member. His accomplishments include Cross-Country Coaches award, National Merit Scholarship Semifinalist, Academic Achievement Award, Governor's School candidate and Chief Junior Marshal. Listed in the 1999 *Who's Who in America's High Schools*, he is a member of the Boy Scouts, the Cross-Country team, the X-Plorer's Club, the Junior Civitans, the Fellowship of Christian Athletes and the Spanish Club.

Angelo scholarships are valued at \$7,500, provide full tuition, fees, room and board for one year and are renewable. They are the single largest merit scholarships awarded by the College of Engineering at NC State University.

## BP Amoco Supports Engineering

The BP Amoco Foundation has selected the College of Engineering at NC State as one of 10 colleges nationwide to receive support for engineering programs. The foundation will provide \$50,000 each year for three years. The funds will be used to support student programs, including recruiting and retention. The grant focuses on supporting programs that provide academic scholarships for recruiting and increasing diversity, expand pilot mentoring programs that impact retention, increase engineering outreach using student ambassadors, provide incentive for faculty involvement in recruiting and undergraduate research, and expand research experiences for undergraduates. The proposal includes plans for a Center for Minority Engineer Development that would create an environment of support for the offices of minority engineering programs, women in engineering programs and engineering recruiting.

## Woolard Endows Scholarship

Simon Brown Woolard (BSEE '38 - NC State; MSEE '40 - Texas A&M) of Ormond Beach, Florida, a retired engineer with General Electric, has pledged \$50,000 to establish the Simon Brown Woolard Scholarships in the College. Woolard worked in aerospace electronics with General Electric Corp. for 35 years and taught avionics courses at Embry-Riddle Aeronautical University in Daytona Beach. Valued at \$2,500 per year, the scholarship will be awarded on the basis of merit, with a preference given to students from Martin County, NC.

## Sherrill Endows Merit Scholarship

Joseph H. Sherrill (BSME '32) of Winston Salem, retired president of Arjay Equipment Co. and retired vice president of R.J. Reynolds Tobacco Co., has given \$50,000 to endow the Joseph H. and Mary S. Sherrill Scholarship for studies in the College of Engineering. The merit scholarship is valued at \$2,500 per year. An inventor and developer of machinery for the tobacco industry during the 1960s and 1970s, he served as president and chairman of the NC Agribusiness Council from 1975 to 1981. An active alumnus, he has served as director of the NC Engineering Foundation, the North Carolina State University Foundation and the Engineering Advisory Council. He was vice president of the NC State University Alumni Association in 1971.

## Highfill, Pearson, and Cunninghams Endow Scholarships

William Earl Highfill (BSEE '41) of Salem, SC, retired chief project manager for Exxon Research and Engineering Co., has donated \$43,537 to the College of Engineering. The unrestricted gift of 600 shares of Exxon Corporation stock will benefit the Department of Electrical and Computer Engineering at NC State and will be administered by the North Carolina Engineering Foundation Inc.

Thomas D. Pearson (BSFMM '65 - NC State; MBA - Emory) of Charlotte, owner and president of Pearson Land Corporation, has pledged \$25,000 to establish the Thomas D. and Tressa L. Pearson Scholarship at NC State University. Valued at \$1,250 per year, the scholarship will be awarded to students on the basis of merit. Recipients must be enrolled in an engineering curriculum with a preference given to students interested in industrial engineering.

Thomas Greeley Cunningham (BSMAT '71, MSMAT '74) of Wilmington, an engineering manager with General Electric, and his wife, Mimi, have made a deferred gift to establish the Tom and Mimi Cunningham Scholarship in the College of Engineering. When funded, the scholarship will be valued in excess of \$7,500 to benefit one or more students enrolled in an engineering curriculum with a preference given to students interested in materials engineering.

## Colson Endows Merit Scholarship

Joseph S. Colson Jr. (BSEE '68), president of Colson Consulting, has given \$190,000 for the Dr. Joseph S. Colson Scholarship Endowment in honor of his father. The endowment will support several merit scholarships for students enrolled in engineering at NC State. Colson has served on the NC State University Board of Visitors and on the Board of Trustees for North Carolina A&T State University. He has served as president of AT&T Affiliates, AT&T Network Systems. In 1998, he retired as president of International Regions and Professional Services at Lucent Technologies, Inc. Named as one of "America's Most Powerful Black Executives" by Black Enterprise Magazine in 1993, Colson holds a master's degree in electrical engineering from Stanford University and received an honorary doctor of humanities degree from NC A&T State University in 1995.

## HP Gives \$117K Grant

Christopher Healey, assistant professor of computer science, has received an equipment grant from Hewlett Packard valued at \$117,145. The equipment, 25 Kayak PC Graphics Workstations, will be installed in the Multimedia Laboratory located in the Engineering Graduate Research Center. Based on 450 megahertz PCs with 9 gigabyte hard drives and accelerated OpenGL hardware, the workstations are designed to support undergraduate and graduate courses in graphics, computer-human interaction and multimedia.

## Lockheed Martin Donates \$175K

Lockheed Martin Corporation has pledged \$175,000 to establish scholarships in the College of Engineering. William B. Bullock, president of Lockheed Martin Aeronautical Systems in Marietta, GA, presented a ceremonial check to Dean Masnari. The scholarships will support students enrolled in mechanical and aerospace engineering, electrical and computer engineering, and computer science. Following the check presentation, Bullock, a 1957 graduate in mechanical engineering at NC State; Al Pruden, a 1955 aerospace engineering graduate of NC State and F-22 program manager for advanced product development; and Stephen Pigott, senior business management analyst, toured the Engineering Graduate Research Center and laboratories in mechanical and aerospace engineering. Students gave a presentation on the progress of their senior design project — designing and building a Delta-wing aircraft. Bullock then gave a seminar on opportunities available in engineering fields with diverse companies such as Lockheed Martin.

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Students participating in the summer Student Introduction to Engineering (SITE) programs will spend a day in the Product and Process Engineering Lab, also known as the Take-Apart Lab, where they examine everything from photocopiers to electric guitars to learn about the engineering involved in their design and manufacture. David Ollis, third from left, is the director of the lab.

## Career Fair a Big Success



The Engineers' Council sponsored its second annual Engineering Career Fair in February at McKimmon Center. More than 80 companies and 1,200 students attended this popular fair. Daniel Burrell (BSIE '99) learns about career possibilities from Delphi Systems recruiter Betty Hooks.