A message from the dean

Agenda: renovation, reaccreditation, reallocation

The past few months have been eventful ones on the Auburn campus, in a number of different ways. When I assumed the position of interim dean in September of last year, we were faced with issues that included budget reallocations, accreditation visits, the continuing transition to the semester system, and some unavoidable delays in the start-up of the Wilmore Laboratories renovation project.

As the academic year began, the greatest challenge facing us involved university-wide budget reallocations in which we were asked by Auburn's central administration to formulate a plan to move 2 percent per year of the College of Engineering's budget into core enhancement areas, for a total of 10 percent over five years.

A great deal of concern was voiced regarding some proposals that were put forward to reallocate funds that would provide salary increases for faculty and staff and funds for deferred maintenance, as well as return dollars to the College of Engineering for program enhancement. This was particularly true as it related to the merging of some departments and phase-out of aviation management as a unit within the College of Engineering.

Our original charge was to reallocate $1.6 million in funding, which was a figure I took to the department heads for faculty input, as well as a 12-member committee drawn from the Auburn Alumni Engineering Council. After our plans were assessed and reviewed, they were sent to the central administration, which ultimately reduced the amount of the reallocation to approximately $500,000.

I should say here that the reduction to this amount was due mainly to changes in outside economic factors, not because the College of Engineering was being exempted from the same requirements being made to other units in the university. However, the end result was that we were no longer required to look at department mergers.

At the same time, the phase-out of aviation management remained in the reallocation proposal, along with a move to self-supporting status for Engineering Extension Services.

Although a viable program, aviation management falls outside of the mission of the College of Engineering to provide students with the best engineering education possible. Because of this very (continued on page 2)
plan to recognize these contributions in a ceremony following the building’s completion in early 2001.

Speaking of dates, our transition to the semester system is continuing on course, with the first classes under semester terms scheduled to begin in the fall of 2000. This too has been a major undertaking, with all of our curricula undergoing major revisions; they have been sent to Samford Hall for final approval.

Three departments have asked for approval of curriculum models that contain credit hours beyond the suggested cap of 128, which corresponds to 192 quarter hours. Because of the need to balance a strong technical component with a large core curriculum, we believe that there are strong justifications for these models, and feel positive regarding their outcome.

Let me also point out that we are still on track with plans requiring all freshmen entering in the fall of 2000 to own laptop computers. Many of our peer institutions have already moved in that direction, recognizing the increasingly important role that technology plays in the education process.

In fact, we have already begun the planning process for “ported” classrooms in which every student desk will be wired into a network able to access everything from a professor’s syllabus to a classmate’s notes—to the world wide web beyond. This is itself a striking example of technology’s ability to create a faster, more interactive learning environment that is readily able to bring students the vast amounts of information they are required to review, assess and analyze.

The direction the College of Engineering is taking in meeting the challenge of the future has also been defined by a recently completed precinct study that will chart our course over the next decade. This $120 million master plan includes the renovation of some 124,000 square feet of space and new construction of approximately 400,000 square feet.

Beyond bricks and mortar, our planning calls for ways to enhance faculty retention and student scholarship support. A meaningful move toward the former was the recent awarding of the first two Philpott-Westpoint Stevens Distinguished Professorships to Bruce Tatarchuk of the chemical engineering faculty and Roy Broughton of textile engineering. These will be followed by an additional three professorships drawn from this endowment.

At the same time, our move toward the enhancement and prioritization of engineering’s mission areas is designed to pull these efforts into a global scale by increasing funding of faculty positions to regional and national averages. The increasingly competitive task of attracting new faculty and retaining our most accomplished professors makes this move an absolute necessity.

In a similar vein, we want to build on our scholarship program in order to attract the best and brightest students that we can. The current stature of our scholarship program, in which awards totaling some $500,000 are distributed to about 350 students, must be improved if we are going to compete successfully against our peer institutions.

The support that we have received from our alumni and friends has begun the process of bringing funding to the level required to adequately support these enhancements. This kind of involvement impacts not only our most precious resource, our students and faculty, but projects such as the renovation of Wilmore Laboratories. We hope that you will continue your support into the future as we build a world-class engineering program into reality.

You can find us on www.website

Additional information on the College of Engineering is available on our web site at: http://www.eng.auburn.edu.

In addition to home pages for each of our research centers, departmental web sites include more details on faculty, laboratory and computer facilities, and related information.
Leo Bidez, left, crosses the graduation stage at Clemson, receiving a bachelor's degree in political science nearly six decades after he graduated from Auburn in chemical engineering.

'40 API grad Leo Bidez adds Clemson degree to Auburn's—at tender age of 79

Among the approximately 800 graduates attending Clemson University's winter graduation ceremony, Leo Bidez stood out. And not for his grades, though his grades were good. Bidez stood out because, at age 79, he's almost four times the age of most of his classmates.

Bidez received a bachelor's degree in political science, some 15 years after he first took a class at Clemson and 58 years after he graduated from Auburn University with a degree in chemical engineering. He and his wife, Sally, retired to the Clemson area in 1978, following a 37-year career with DuPont.

"For the first few years I played a lot of golf, and some of the people I played with were Clemson professors," he said. "In 1983, I decided to take a course in political science because that was what interested me at the time. That class was taught by Dave Woodard.

"I was very impressed with his emphasis on education as a way to live, and not just a way to get a job." For his part, Woodard, who won the 1998 Excellence in Teaching award from student government, said that Bidez gave his fellow students a perspective on life they would not have gotten otherwise.

"He offered them an appreciation of what really counts in education," Woodard said. "He always attended class, contributed to the discussion and corrected me when I make a mistake." Bidez took "a course or so every year," dabbling in political science, history, theatre and music.

"A few years ago, I realized that without trying, I almost had a degree," he said with a chuckle. "I talked to the registrar's office, was able to transfer some credits from Auburn, and now I'm going to be a Tiger from two schools.

He chose the Clemson area for re-

(continued on page 15)
Roy Broughton, left, of the textile engineering faculty, and Bruce Tatarchuk of chemical engineering have been appointed as the first two Philpott-WestPoint Stevens Distinguished Professors. Selected through a rigorous process that considered excellence in instruction, research, and their commitment to students as role models, they will be followed by three additional appointments in the next two years.

AU leads Southeast in software engineering degree

Auburn has become the first university in the Southeast to offer the bachelor of software engineering degree (B.Swei.) and the master of software engineering degree (M.Swei.), according to James Cross, chair of the Department of Computer Science and Engineering.

“The goal of these software engineering programs is to give our graduates the ability to analyze, design, implement and maintain software systems,” Cross notes.

Applications include computer operating systems and networks, compilers, real-time and embedded systems, distributed and parallel systems, and engineering, scientific, and business application software systems.

Cross points out that although the term software engineering has been in use for 30 years, it was only about five years ago that the field’s two major professional societies, the Association for Computing Machinery and the IEEE Computer Society, began working jointly to define software engineering as a discipline. The Accreditation Board for Engineering and Technology (ABET) in turn developed an accreditation criteria for software engineering degree programs.

“Last year Texas became the first state to issue the professional engineer (P.E.) license in software engineering,” Cross adds. “As more degree programs become available, other states are expected to offer the P.E. to software engineers as well. These events have been a catalyst in the recognition of software engineering as a defined engineering discipline that stands on its own.”

At Auburn, freshmen entering in the fall of 1998 are expected to be the first graduates to receive the B.Swei. as they finish in the spring semester of 2002. Graduate students may be able to receive the M.Swei. degree by the summer of 1999.

“By refocusing its engineering curriculum on software engineering, CSE moves to the leading edge as a provider of information technology professionals. We will, of course, continue to offer the B.S. in computer science and the M.S. and Ph.D. degrees in computer science and engineering,” Cross points out.

CSE’s combined degree programs continue to attract top students to Auburn, with Fulbright Scholars a case in point—a majority are enrolled in the department. Enrollments in CSE classes have steadily increased over the past five years, and are predicted to continue growing over the next five to ten years.

Mahmoud El-Halwagi is named as alumni professor

Mahmoud El-Halwagi of the chemical engineering faculty has joined three others awarded the Alumni Professorships by the Auburn Alumni Association, including Connor Bailey, Agricultural Economics and Rural Sociology; Caleb Clark, Political Science; and Gregory Pettit, Human Development and Family Studies. Selected on the basis of outstanding teaching and research, the awards were effective with the start of the 1998-99 academic year.

“The Auburn Alumni Association funds the Alumni Professor program because of its desire to support distinguished faculty,” said former provost Paul Parks.
Martial Honnell remains active as student mentor

Most days, Martial Honnell will be one of the first faculty members in the offices of the Department of Electrical Engineering, where he has taught and counseled students since 1958. Most afternoons, he can be found at AU’s Draughon Library, keeping up to date with the field he helped pioneer.

The primary difference between Honnell and most faculty on campus any day of the week is that he has been retired since 1981. Yet, he is in his office and the library nearly every class day, counseling students, searching journals and texts for new developments in electrical engineering, and briefing faculty on his findings.

“I’m only 88,” he says. “Electrical engineering has just become a part of me; it has been a hobby of mine just about all my life.”

Over the past 18 years, he has also continued to teach at least one class a year — most recently last fall when he taught a course in electromagnetic compatibility. His file cabinets bulge with articles and reference materials from a career spanning more than five decades. By helping students and faculty keep up with changes in technology, Honnell says he is following habits in his career dating back to the 1930s.

Honnell’s absences are so rare that Department Head David Irwin becomes concerned anytime the professor emeritus is late or fails to show.

“Probably the main benefit of having him here is that the students and faculty members get to ask him questions and discuss topics with him,” said Irwin, noting that Honnell has participated in or witnessed most of the history of the field.

Honnell has been involved in the evolution of electrical engineering from his youth as a pioneer in radio technology through his leadership of an Auburn team that developed television transmission capabilities for the early U.S. space program. He remains atop developments in the field as the department’s leading resource person, continually monitoring journals, books and research reports on electrical engineering breakthroughs.

In the early 1960s, Honnell led an Auburn team of faculty and students that developed the original television transmitters for NASA’s first ventures into outer space. They turned to Honnell, who had previously assisted defense research at Redstone Arsenal, when research in industry proved too cumbersome.

“Industry couldn’t deliver, so we did it ourselves,” he recalled. “We were a small group and able to act so much quicker.”

When he came to Auburn in 1958, Honnell already had a noteworthy career in industry and at Georgia Tech, his alma mater. He had become interested in electronics as a child and was building radios at home at age 7 in 1919, before most cities in America had radio stations.

With radio-operator experience in the Merchant Marine, Honnell worked his way through Georgia Tech in the early 1930s. He then alternated between teaching and industry before coming to Auburn in 1958. In recognition of his career contributions to the field, Honnell was inducted into Georgia Tech’s Engineering Hall of Fame in 1997.

Irwin said students and faculty gain from Honnell’s experience with developments in electrical engineering over most of the 20th century.

U.S. News, Kiplinger's put Auburn in rankings

U.S. News and World Report magazine has ranked Auburn University among the nation’s 50 top public universities in 1998-99 in providing a superior education at a modest cost.

Auburn was the only college or university in Alabama — public or private — listed among the magazine’s top 50 “national universities.” UC-Berkeley and the University of Virginia tied for No. 1 nationally.

The magazine reviewed more than 1,400 colleges and universities before selecting its top 50.

The only Southeastern Conference-member schools ranked ahead of Auburn were the University of Florida and the University of Georgia. State support for those universities has far outstripped AU over the past four years, however. It was the sixth consecutive year that U.S. News has ranked Auburn nationally.

U.S. News said it rates colleges and universities to “provide an objective guide by which students and their parents can compare schools. When consumers purchase simple household appliances, this sort of information is freely available. We think it’s even more important that comparative data help to inform decisions about an education that can cost more than $100,000.”

The magazine rated a university’s quality by academic reputation, faculty resources, student selectivity, financial resources, graduation rates and alumni giving.

In assigning its best values rankings, it used ratio of quality to price, percentage of undergraduates whose financial aid needs are being met and (continued on page 15)
Denney focusing on MRI research

Thomas Denney Jr. of the Department of Electrical Engineering is working to improve MRI technology so that it can be used to provide real-time data for general clinical use in diagnosing heart disease. He was awarded a $95,000 equipment grant from SUN Microsystems to support his continued research in multiprocessing.

“Of the largest obstacles keeping MRI technology from general clinical use is the computation time required to obtain diagnostic results,” Denney says.

“The capability to use MRI to examine the heart and its mechanical contractions has existed since the late 1980s, but to actually take an image and obtain a quantitative measure of function requires additional signal processing.”

Denney works with his alma mater, the Johns Hopkins University of Maryland, in his research. Using three-dimensional digital models of the human heart, he has developed new signal processing techniques that improve the real-time capabilities of MRI.

“Johns Hopkins provides three-dimensional video models using MRI that reflect actual heart conditions,” Denney points out. “I then take those models and apply signal processing techniques that can quickly show the heart’s activity by displaying its different regions in different color patterns.

“These colors represent how much the heart is contracting within each region. They represent detailed information about the inner workings of the heart that cannot be obtained with other imaging techniques.”

Denney’s work will ultimately provide doctors with a completely non-invasive way to examine heart patients and an additional, highly reliable diagnostics tool to employ when making serious surgical decisions.

Microchip could aid food safety, Chin says of new NSF research

Could a tiny microchip in every food package at your neighborhood supermarket help ensure that your family’s dinner is safe to eat? A research team at Auburn University believes it can.

Funded by a $99,640 feasibility study grant from the National Science Foundation, the team is working to turn the technology into reality.

“This is the next generation in detection technology,” says Bryan Chin of materials engineering and a lead investigator in the project.

The radical detection technology requires little power to operate and uses acoustic wave sensors and radio frequencies to monitor and report a variety of quality conditions, Chin says. Produced as a component about the size of a postage stamp, it is both a detection and information device.

“The concept is to eventually place this device on every fresh food product produced in the United States,” Chin said. “These devices, which would cost less than 10 cents each, would monitor such conditions as temperature, bacteria count and chemical changes.”

The microchip can also serve as an automatic inventory monitor for the product, probing quality attributes from the processing plant to the point of sale, Chin added.

Changes in product quality or conditions are detected by the tiny electronic sensors in the microchip, Chin said. By means of radio frequencies, any changes are reported to a computer-based data collection center — such as a laptop computer, a quality control center that is part of the production line, or some other type of portable, handheld device.

“It would show everything about the safety attributes of the product that are affected by temperature history — beginning with processing, through packaging, shipment — and also the bacterial count or any chemical breakdowns that may be occurring,” Chin said.

Since the device can operate in both an alarm and interrogation mode, it also (continued on next page)
Non-woven ballistic fabric outperforms conventional materials

Howard Thomas of the textile engineering faculty has developed a tough new bullet-proof material that outperforms conventional body armor while providing more comfort to its wearers.

The new fabric has the appearance of felt. Looks are deceiving, however, because the new layerd material can stop a high-velocity rifle at close range — something existing body armor can’t do. In addition, conventional ballistic-resistant fabrics can’t match the comfort of the material developed by Thomas.

Body armor fabrics are generally based on polymides, a group of synthetic fibers including nylon and polyethylene, says Thomas. The fabrics are woven into various layers to construct garments; increasing the ballistic protection factor also means increasing the number of them.

“Garments made of these materials provide a substantial degree of protection, but they don’t breathe and transport body moisture efficiently,” Thomas says. “As you can imagine, they can be quite hot and uncomfortable, and types presently produced still aren’t effective against hand guns at close range — and certainly not against rifle fire.”

Thomas’ fabric is not woven, but laid in alternating layers using various arrangements of the types of fibers used in Kevlar and Spectra — two ballistic-resistant products that now dominate the market — and fluffed into a mat-like material. Tiny ceramic or metallic inserts are imbedded into the fabric.

“The mat actually acts as a cushion, absorbing and distributing the shock of a bullet more efficiently than conventional woven fabric,” he said. “The imbedded inserts serve as deflectors, reducing the energy of the bullet by diverting its path in a multitude of directions simultaneously.

“When a bullet strikes the fabric, it strikes multiple reflective surfaces and spins at so many different angles and rates of speeds within itself, that it literally disintegrates.”

When sandwiched between layers of conventional woven ballistic-resistant material, the result is a garment weighing up to 30 percent less than those currently available that also provides greater protection and comfort to the wearer.

Thomas’ fabric has performed effectively in tests at ranges as close as three feet against various firearm calibers, including .22, .38, 9mm; .45; .44 magnum; and high-velocity rifle rounds such as the .223; .308; .270 and .30-06.

In addition to body armor, Thomas says his fabric may have other ballistic-protection applications in law enforcement and military vehicles, and in building construction. Thomas has received a patent for his fabric and a second one is pending.

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NCAT test track will accelerate asphalt research

With the exception of Talladega and Daytona, the College of Engineering-based National Center for Asphalt Technology (NCAT) will soon be operating the largest track in the Southeast.

It is being built through the support of the Alabama Department of Transportation, which has a long history of interaction with NCAT, as well as the College of Engineering-based Highway Research Center, and academic departments such as Civil Engineering.

With grading almost complete, the next steps are paving and building support structures; completion is anticipated by the end of the year.

The differences and similarities between Talladega and the Auburn track are in the eye of the beholder.

**Talladega:** 2.66 mile oval, 33 degree banking.

**Auburn:** 1.75 mile oval, 15 degree banking.

**Talladega:** seating 100,000.

**Auburn:** seating in driver’s lounge only

**Talladega:** 3,500 pound stock car

**Auburn:** tractor with three

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Food safety (continued from page 6)

can identify points where contamination occurred in the manufacturing-processing-storage chain.

Auburn researchers have been working on the development of very small, low-power micro-sensing devices for about 10 years, according to Chin. In larger formats, applications of this technology have been successful in monitoring the integrity and safety conditions of highway and railroad bridges and in military weapons inventory systems.

“We envision this novel food safety technology being ready for commercial application within five years,” Chin said.

“Devices based on this technology may be common in every household refrigerator within 10 years.”

Work on the food safety technology at Auburn involves an interdisciplinary team of scientists ranging from materials and electrical engineering, to microbiology and chemistry, to anatomy and pharmacology, to experts in business and governmental policy.

“All total there are some 28 faculty members involved from among 11 different departments within seven different colleges and schools,” Chin said.
Thrill ride becomes reality for Christie Sims

Christie Sims’ ride on the ‘vomit comet’ took a year of waiting and wondering, but the effort, she says, has all been worth it. No, it’s not a ride at Disney World or Six Flags.

The vomit comet is a specially modified KC-135, an airlifter used by NASA to simulate the weightlessness of space travel by cutting a series of parabolas through the sky. A near-weightless environment—called microgravity—occurs on the flight’s descent.

A leader of one of two teams of Auburn students carrying experiments aloft in late March, Christie said that the process began last spring when Joey Broome, then a co-op student at Johnson Space Center, brought the NASA program to her attention. Broome and Sims were joined by seven other AU students.

“When we applied for the ride, we had to make a formal proposal to NASA detailing how we would build and carry out our experiments,” the aerospace engineering senior noted.

Christie’s team—called DAMPER—designed a structure that utilizes piezoelectronic ceramic tiles, or PZT’s, in a closed loop feedback system to dampen unwanted vibrations. Fellow AE senior Karl Sebelius’ team—SNOOP—developed a robot that can hover and maneuver in a microgravity environment.

“I’ve already received more out of this project than I asked for,” Christie said, before leaving on a two-week trip to Johnson Space Center that first included learning safety procedures in ground-based simulators.

“This project presented me with leadership challenges, and allowed a close-up look at NASA’s space program,” she pointed out. “We were also guests at a dinner hosted by all of the NASA co-ops, and another hosted by AE grad Jim Voss, who’s on active shuttle duty.”

Christie, who graduates in June, said that she came to Auburn as a first step in becoming an astronaut herself. Her sister, Angie, a CSE graduate from Auburn, was also a factor in her decision.

“I used to come down to Auburn and visit Angie, and roomed with her in my freshman year,” the Sylacauga resident noted. “She was a senior at the time.”

Her parents—Barbara and Terry—were born and raised in Anniston, moving the family to Sylacauga when Christie began high school.

“They’ve been very supportive and encouraging,” Christie is quick to point out. “That’s an important thing at a time when you’re away from home and have to learn to make decisions on your own, really for the first time in your life. It makes all the difference.”

Her advice to incoming freshmen is simple: “Get involved in the kind of activities that will give you the most leadership opportunities. That’s what sets Auburn students apart from others.”

A member of the Cupola Society and the student chapter of the American Institute of Aeronautics and Astronautics, she counts her own academic career at Auburn as the most rewarding experience she has had.

“I feel that I not only got a good education, but that I had a lot fun getting it,” she explains. “It has been tough and challenging, but that’s what has given me a feeling of accomplishment as well.”

What’s next for Christie?

“I have a couple of job feelers out now,” she says. “...and I’m still looking at becoming an astronaut.”
Keith King brings leadership qualities to council

When Keith King assumed duties as chairman of the Auburn Alumni Engineering Council at the group’s fall meeting on campus, it represented the culmination of a lifetime of involvement with the College of Engineering. The council, which acts as an advisory board to the dean, consists of engineering leaders in all disciplines.

A 1958 civil engineering graduate, King was named that department’s outstanding alumnus in 1997; in 1990 he received the Auburn University Distinguished Service Award. Professional honors have followed him in the field as well, including back to back honors as the Alabama Society of Professional Engineers’ engineer of the year in 1984-85, first in the private practice sector, then overall.

In 1993, King received the distinguished service award from the National Council of Examiners for Engineering and Surveying for his tenure on the Alabama State Board of Licensure for Professional Engineers and Land Surveyors; and in recognition of his service to the university, was recently elected to serve on the board of directors of the Auburn Alumni Association.

Born in Frisco City, then and now a small town tucked into the pines of Monroe County, he graduated in a high school class of 18. An uncle, Turner Murphy, who received a degree in civil engineering from Auburn in the forties, influenced him to follow in the profession.

“I also grew up in an ‘Auburn family’ but I was not prepared for the kinds of classes that I faced when I came to school at Auburn,” King admits. “I didn’t have the courses I needed in advanced math or in chemistry. I had a very difficult freshman year.”

In fact, he flatly adds, “I had a difficult four years . . . it always seemed to require a great deal of effort to catch up.

“Things did get better after my freshman year, and my memories of Auburn are the fondest ones I have,” he notes. “We had some very effective teachers, two in particular that I still think of — Arthur Chase and Vernon Watwood.”

It was also a time when the Eisenhower interstate highway system was coming on line. This would deeply influence King’s direction in school, and in his career that followed.

“The development of the interstate system was a very exciting thing in the road-building industry at the time . . . a lot of my friends went to work for state departments of transportation. I did as well, moving to the Louisiana DOT in Baton Rouge.”

Keith King’s association with the College of Engineering has been a life-long commitment. As chairman of the Auburn Alumni Engineering Council, he will lead engineering alumni into the next century.

King worked there two years before moving to the engineering consulting firm of David Volkert & Associates in 1960. It would become a life-long commitment.

“From the beginning of my career I had an interest in engineering management,” King relates. “I felt drawn to it, first leading teams on small projects, then moving to the management of departments and larger groups. I was not really attracted to the kind of detail engineering that focuses on product development.”

From Volkert’s corporate headquarters in Mobile, King now oversees offices in Alexandria, Va., Chattanooga, Birmingham, New Orleans, Gulf Shores, Fort Walton, Tampa, Miami, and additional sites. He has been president and CEO of the firm since 1983.

“We’re involved in a lot of infrastructure work in the municipalities and states where we’re located,” King notes. “We take a systems approach to the projects in which we’re involved.”

Among the projects King managed as chief engineer are the McDuffie Island coal export terminal, and the twin bridges that move I-10 traffic across Mobile Bay. Another of Volkert’s landmark bridge projects in which he was involved is the Cochrane/Africatown bridge in Mobile.

Both bridge projects received the National Society of Professional Engineers’ Outstanding Engineering Achievement Award; the I-10 bridges and McDuffie export facility have also been inducted into the State of Alabama Engineering Hall of Fame.

He points with pride to the 350 jobs that Volkert has brought to the state of Alabama. The firm employs some 500 throughout the corporation as a whole. The company is looking toward its seventy-fifth anniversary in the year 2000.

His appreciation for the physical make-up that defines bridges through concrete and rebar translates to a love for the brick and mortar that characterize the Auburn campus as well.

“I love Auburn’s landmark buildings, and the great deal of emphasis that has been taken to make the campus attractive through the preservation and development of green ways,” King points out. “I believe that the environment a university creates for itself is very important.”

As well, King feels an appreciation (continued on next page)
of and commitment to the learning environment he now sees in the College of Engineering.

“We have a lot of pluses here, and a lot of challenges, too,” he observes. “We need to work toward ensuring that Auburn, and the College of Engineering, receive a fair share of the budget, and a fair share of state appropriations. We graduate more than half the engineers in Alabama, and that’s a message we need to get across to the people of the state.”

He adds that pressure on public funding of education also means that private giving and endowments will play a significant part in the future of Auburn Engineering.

“We’re going to have to see more private funding if we are going to compete with our peers, many of whom are ahead of us already in this respect,” King says. “We want to keep Auburn in a leadership position.”

When asked what area has seen the biggest change over the past four decades since he graduated, King is quick to point out that students now come to Auburn better prepared, and face a new and different engineering market.

Pointing to the resilience he had to learn as he struggled in his first two years at Auburn, King notes that the challenges students face today include an ability to manage change, which he calls a tremendous challenge.

“There is more of a need today to manage technology, and to work on a global scale in terms of marketing—pricing services, remaining competitive in a keen market, and working in an environment of mergers and acquisitions,” he observes. “My experience at Auburn toughened me up for the professional years ahead . . . something that’s even more important now.”

King, who was recently named as a member of the Samford Society, keeps coming back to the Auburn campus.

“I’ve enjoyed my association with Auburn, and it always gives me a lot of pleasure to come back and interact with students,” he beams. “I like hiring them as well. They come to us as well prepared, or better prepared, than engineering students from any other campus.”

Chemical Engineering graduate Joe McMillan, center, singled out two faculty members during his acceptance speech as pivotal in his success beyond Auburn: Leo Hirth, left, and Donald Vives, both of whom are now emeritus professors of chemical engineering.

McMillan is named to engineering hall of fame

The state of Alabama Engineering Hall of Fame inducted Joe T. McMillan, president of Exxon Coal and Minerals Co., and three other honorees in ceremonies held on the Auburn campus in late February. McMillan is a 1958 graduate in chemical engineering.

Joining McMillan and 63 previous inductees were Allen Franklin, president and CEO of Georgia Power Co.; Harry H. Holliman, president of the Eastman Chemical Co. Tennessee Eastman Division; and the late David R. Hart, a chemical engineer who held 10 patents and served as an Auburn instructor.

A native of Birmingham, McMillan joined Exxon in 1958 as a chemical engineer, carrying out a wide variety of assignments in a career spanning 41 years. His management responsibilities range from engineering to research and marketing to manufacturing. He has been active in the company’s operations in Europe, the United States and Africa.

“Joe McMillan forged a reputation as an innovator in the use of sound engineering principles to operate facilities at maximum value in new capital investments required to improve the business,” Hall of Fame secretary Gary April said during the induction ceremony.

“This experience led to his promotion to executive vice president of Exxon USA in January of 1990 and then to the position of president of Exxon Coal and Minerals in 1997.”

McMillan serves on the Auburn Alumni Engineering Council and the Auburn University Foundation board of directors.

During his 40 years in industry, David R. Hart worked as an innovator with US Pipe and Foundry Co., now Jim Walter Resources, and as a project manager for RUST International, both headquartered in Birmingham. Hart published numerous technical papers on chemical engineering and in 1995 was named a fellow of the American Institute of Chemical Engineers.

In addition to his industrial work, Hart served as an adjunct professor at Auburn University and the University of Alabama (both alma maters), as well
McMillan
(continued from page 10)

as UAB.

Also honored at the induction ceremonies were three projects, including BellSouth’s Alabama Operations Center, previously honored with two energy conservation design awards as well as awards for architectural design and nature conservation; Acordis Cellulose Fibers Tencel process, a breakthrough in environmentally friendly fiber technology; and the Ellicott Southern Boundary, the first established demarcation line between the United States and the Spanish Colonies of East and West Florida.

In 1968, Ellicott’s line was chosen as one of the first 10 American Society of Civil Engineers Historic Engineering Landmarks, which places it in the same company as the Hoover Dam and the Brooklyn Bridge. Today, this two and a-half foot sandstone rock serves as the point of origin for all land surveys in south Alabama and southeast Mississippi. The boundary is named after Major Andrew Ellicott, an 18th century surveyor who was commissioned by President George Washington.

The Engineering Hall of Fame was founded in 1987 in recognition of the 150th anniversary of formal engineering education in the state of Alabama.

Its purpose is to honor, preserve and perpetuate the outstanding accomplishments and contributions of individuals, projects and corporations or institutions that have brought and continue to bring significant recognition to the state.

Neil Grigg establishes new endowment

Civil engineering graduate Neil S. Grigg of the class of 1965 has established an endowment to provide scholarships in the College of Engineering in memory of his parents, Richard Wilmer Grigg and Eleanor Burns Grigg. The Griggs are members of two Alabama families which strongly supported Auburn and the engineering profession.

Richard Grigg, a member of the class of 1916 at Auburn, served in the Navy in World War I and worked in Ohio in the steel industry before returning to Alabama in the 1930s to work with Paragon Press.

He married Eleanor Burns in Montgomery in 1935. Burns served for more than 30 years as the key administrative officer in the

Jones trust established

John D. Jones seemed destined to become an engineer. The 1947 graduate, born in Natural Bridge, Ala., in 1922, became familiar with the engineering field from his father, who worked for the North Alabama Railroad and encouraged him to study engineering.

Throughout his career at Alabama Power Company, his Auburn education helped him provide the leadership necessary to bring improved electrical service to Alabama and the region. Now, in retirement, John and his wife Dolphine (Dollie) have recognized the need to bring the power of education to future engineering students. They have done so by funding a scholarship endowment through a charitable remainder trust.

Jones’ college days were interrupted by World War II, when he served in the Army and ultimately achieved the rank of Major General. After the war, he returned to Auburn and graduated in electrical engineering. He then devoted his career to Alabama Power, leading major projects dedicated to the improvement of power service.

Before retiring in 1985, he had leadership roles in projects involving thousands of workers, including construction of the Farley Nuclear plant, Miller Steam Plant and Mitchell Dams.

About a year ago, John and Dollie learned of a way they could help the College of Engineering at Auburn, while also providing life income for

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**EES Schedule**

*Engineering Extension Service public programs for spring and summer*

<table>
<thead>
<tr>
<th>Dates</th>
<th>City</th>
<th>Courses</th>
</tr>
</thead>
<tbody>
<tr>
<td>April 26-27</td>
<td>Pittsburgh</td>
<td>Vibration Measurement and Analysis for Predictive Maintenance and Troubleshooting</td>
</tr>
<tr>
<td>April 28-29</td>
<td>New York</td>
<td>&quot; &quot; &quot; &quot;</td>
</tr>
<tr>
<td>May 18</td>
<td>Birmingham</td>
<td>Electrical Power Systems for Non-Electrical Engineers (Part IV)</td>
</tr>
<tr>
<td>May 20</td>
<td>Atlanta</td>
<td>Radon Continuing Education Classes</td>
</tr>
<tr>
<td>May 21</td>
<td>Atlanta</td>
<td>&quot; &quot; &quot; &quot;</td>
</tr>
<tr>
<td>June 14-15</td>
<td>Nashville</td>
<td>Benchmarking Maintenance Management</td>
</tr>
<tr>
<td>June 17-18</td>
<td>Atlanta</td>
<td>&quot; &quot; &quot;</td>
</tr>
<tr>
<td>July 12-16</td>
<td>Tulsa</td>
<td>Radon Measurement/Mitigation Course</td>
</tr>
<tr>
<td>July 14-17</td>
<td>Tulsa</td>
<td>Radon Measurement/Mitigation Exams</td>
</tr>
<tr>
<td>August 12</td>
<td>Nashville</td>
<td>One-Day Radon Continuing Education Class</td>
</tr>
<tr>
<td>August 24-26</td>
<td>Birmingham</td>
<td>Control Systems Engineering Exam Review Course</td>
</tr>
<tr>
<td>Sept. 8-9</td>
<td>Birmingham</td>
<td>Legal Aspects of Construction</td>
</tr>
<tr>
<td>Sept. 13-17</td>
<td>Atlanta</td>
<td>Radon Measurement/Mitigation Combined Course</td>
</tr>
<tr>
<td>Sept. 15/18</td>
<td>Atlanta</td>
<td>Radon Measurement/Mitigation Exam</td>
</tr>
</tbody>
</table>

*For more information or a brochure on these programs, contact the Engineering Extension Service (334) 844-4370 or 1-800-446-0382.*

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**Professional Development Certificate Program allows graduate credit**

Engineering Extension Services is now offering a professional development certificate program (PDC) designed to allow engineers and technical professionals to take graduate-level engineering courses for professional development credit, according to George Blanks, coordinator for the program.

“The program is specifically designed for professionals who need to update or enhance their technical skills,” Blanks explains. “Students may earn a professional development certificate or take individual courses for professional development credit.”

Courses are available in aerospace engineering; chemical engineering; civil engineering; computer science and engineering; industrial systems; materials and mechanical engineering; and applied mathematics. The university maintains permanent records and transcripts of students’ course work.

Blanks points to the flexible nature of the program as one of its greatest selling points.

“Applicants are admitted to the program based on their ability to successfully complete PDC coursework, not on their academic record,” he notes. “We also assist students in determining the courses that are right for them.”

PDC course lectures are videotaped as they are presented to on-campus students, and mailed out on a same-day basis via UPS, allowing off campus PDC students to control the time and place they view them, do assignments and take exams.

“In fact, these students complete the same homework, projects and exams as on-campus students,” Blanks points out. “Professors may be accessed by e-mail or telephone for individualized attention with questions or problems.”

Admission to the Graduate School is not required to enroll in the PDC program, and PDC courses cannot be counted toward graduate degree credit.

“Some PDC courses require an undergraduate degree in the area of interest, while others do not,” Blanks adds. “Professional experience can often substitute for formal education in many of these courses. The faculty members teaching the course makes the determination on qualification for admission.”

Depending on the length of the curriculum, most PDC’s can be earned in a year’s time by taking one course per quarter. Course schedules are mailed about 90 days in advance of future registration and payment deadlines.

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**Need more info?**

For more information about the PDC program, contact George Blanks at 217 Ramsay Hall, Auburn University, AL 36849; by e-mail at blankgw@eng.auburn.edu; phone at 1-800-446-0382; or access Engineering Extension’s icon on the College of Engineering’s web page and follow it to the PDC program.
Track represents giant leap for asphalt research

(continued from page 7)

trailer, each axle loaded to 18,000 pounds. 
Talladega: winner makes millions 
Auburn: winner saves millions 
The winners at Auburn, center director 
Ray Brown points out, are the drivers and 
taxpayers of Alabama, as well as other 
cooperating state departments of 
transportation (DOTs).

“This track represents a giant leap forward for the DOTs and industry members 
volved,” Brown points out. “It will allow 
them to test asphalt road surfaces in 
tightly controlled conditions, in an 
accelerated time frame.”

Once the base course for the track is laid 
down, special test sections of asphalt 
will be overlaid, each containing a 
different kind of mix, or asphalt 
recipe.

Four or five carefully calibrat ed 
tractor-trailer rigs will 
circle the track 15 
hours a day, day 
in and day out, 
putting down 10 
million impressions over a two-
year period.

“The eighteen thousand 
pounds placed on each axle are 
defined as equivalent single axle loads 
(ESALs), and will in a two-year period 
simulate traffic that would occur on a state 
highway in its lifetime of 10 to 15 years.”

As testing is finished, the roadway will 
be analyzed for wear.

“We expect that some sections will 
withstand this kind of traffic for the length 
of the trials, while other sections may 
be destroyed by factors such as rutting, which 
is a problem we commonly look at,” Brown explains.

He adds that the track is primarily being 
built to test the longevity of asphalt 
pavements, but that smoothness — what 
the driver feels going down the road — 
and safety factors such as friction 
coefficients will be analyzed as well.

“This is going to be the only track of 
its kind when operations begin,” Brown 
points out. “One reason is the expense in 
routing an operation with this level of 
sophistication.”

In addition to “an impressive amount 
of support from the Alabama DOT,” 
Brown notes that Mississippi, Georgia, 
Florida, South Carolina, Tennessee, 
Indiana and North Carolina are involved.

Other state DOTs may join in the future, 
he adds.

The expected payback to citizens will 
be hundreds of millions of dollars saved 
in construction and maintenance costs.

“Carefully defined research efforts are 
ultimately the most efficient and 
economical way to improve a product or 
a process,” Brown concludes. “What we 
have in this facility is a unique, state of the 
art test facility that will return its 
investment many times over.”

Located near the Spring Villa area north of Opelika, the NCAT test track will soon undergo paving of its base layer of asphalt. Most of the grading for the facility has been completed, and construction will soon begin on the track’s support structures.

Kandhal elected as national panel chairman

Prithvi (Ken) Kandhal, associate 
director of the National Center for 
Asphalt Technology, has been elected 
chairman of a national panel on road 
testing material.

As chairman of the American Society 
for Testing Materials committee on road 
and paving materials, he will head a 
512-member group concerned with 
developing and maintaining standards 
for flexible pavements, as well as 
oversight of products, systems and 
services to construct and maintain 
highways.

Kandhal, who received a master’s 
degree in soils engineering from Iowa 
State University, has focused his career 
on designing, constructing and 
maintaining asphalt pavements. An 
author of more than 100 research 
publications, he has done research on 
asphalt binders, aggregates and asphalt 
mixtures, and co-wrote the first textbook 
published on asphalt technology.
Citation Corporation
of Birmingham pre-
sented its first check in
the establishment of a
scholarship endowment
for engineering students
in a ceremony that in-
cluded, from left, Au-
burn Interim Provost
William F. Walker;
Conner Warren, execu-
tive vice president; Mor-
ris Hackney, president
and CEO; and Rick
Somm, chairman of
Citation; Auburn Presi-
dent William V. Muse;
and Larry Benefield,
interim dean of engi-
neering. The scholar-
ships will be awarded to
students whose pro-
grams of study benefit
the foundry industry.

Parmer bequest to fund scholarship expenses this year...

Harry W. and Eunice S. Parmer made a decision with a significant and lasting impact on Auburn University’s College of Engineering: they established the Harry W. and Eunice S. Parmer Scholarship Endowment in Engineering.

The Parmer Scholarships, formed through a bequest, are being awarded for the first time in 1999, and will provide approximately half of the expenses of an academic year for deserving in-state freshmen, including tuition, fees, books, room and board. Scholarship applicants will be required to demonstrate academic excellence and must be accepted and enrolled in the College of Engineering.

“The Parmers’ planning and generosity has created a significant pool of funds to help Auburn continue to attract the best and brightest engineering students from the State of Alabama,” said Interim Dean Larry Benefield of the million dollar endowment.

Although the Parmers felt they were unable to commit to a large gift to Auburn during their lifetimes, they took advantage of a simple and effective way to give to the College of Engineering by including the Auburn University Foundation in their wills. They set up a named scholarship agreement which would eventually be funded by their bequest. During their lifetimes they had the satisfaction of knowing exactly how their bequest would benefit students,” stated Auburn’s Director of Planned Giving, Hal Reed.

Parmer, who died in 1994, was a 1929 electrical engineering graduate of Alabama Polytechnic Institute. He was active as an electronic scientist.

... fund endowed by Michael Pindzola honors his father

An endowed fund in memory of Michael Pindzola has been established in the College of Engineering by his son, Michael, who serves on the Physics faculty at Auburn. Earnings from the endowment will benefit the Department of Aerospace Engineering.

Pindzola was internationally known for his role in the design and operation of the transonic and supersonic wind tunnels built at the Air Force’s Arnold Engineering Development Center near Tullahoma, Tenn., rising to the position of vice president of operations.

He is also the author of more than 30 professional publications, and taught graduate courses in aerospace engineering at the University of Tennessee Space Institute. Prior to joining the center, Pindzola served in the Army Air Corps and worked in the experimental design group at Pratt and Whitney.

Before his retirement in 1982, Pindzola served on the Sverdrup Corporation board of directors.

By establishing a charitable remainder trust, they not only provided a steady stream of income for the rest of their lives, but also obtained a substantial income tax deduction and avoided major capital gains taxes.

When the trust ends, the corpus will be used to establish a major endowment in their names in the College of Engineering. The Jones’ generosity demonstrates that charitable remainder trusts provide both a lifetime income and major tax benefits to donors as well as a substantial gift to future generations of Auburn students.

—Jones trust

(continued from page 11)
Browns supporting scholarship

The newly established John W. and Rosemary K. Brown scholarship in chemical engineering will annually provide four $2,500 scholarships for deserving juniors and seniors. The Browns, who live in Kalamazoo, Mich., are both 1957 Auburn graduates. Rosemary with a chemistry degree and John with a degree in chemical engineering. He was named president in 1977 of Stryker Corporation, which develops, manufactures, and markets specialty surgical and medical products, and now serves as chairman of the board, CEO and president. Rosemary, who also has a master's degree in mathematics education from Rutgers University, teaches advanced secondary mathematics.

"Auburn University is proud of the Browns' accomplishments and grateful for their support," Larry Benefield, interim dean, noted.

He also pointed out that the Browns have established a similar scholarship to benefit students majoring in mathematics in Auburn's College of Science and Mathematics.

—Auburn rankings

(continued from page 5)

percentage of a school's total cost covered by averaged need-based grants to undergraduates.

Kiplinger's Personal Finance Magazine rated Auburn University among the nation's top 100 public universities in an article entitled, "State Universities to Cheer About."

The article appeared in the September 1998 issue of the magazine. Auburn's ranking was based on the magazine's value rating that combines academic quality and costs.

Kiplinger's rating system includes graduation rates, retention rates and admission test scores; computer and library resources; the number of years it takes most students graduate; affordability, using the ratio of in-state tuition to the state's median household income; percentage of student financial aid needs met by the school; and the average amount of money a student needs to borrow to graduate from the institution.

—Grigg-Burns

(Montgomery County Probate Court.

"The scholarship in civil engineering enables the family to recognize its close link with the twin pillars of that profession — constructing the infrastructure and protecting the environment," says Larry Benefield, interim dean of the College of Engineering.

Neil Grigg is a professor and head of the Colorado State University Department of Civil Engineering. He specializes in water resources engineering and management.

"Our family hopes that the Grigg-Burns Scholarship will help Auburn University to provide opportunities for other Alabamians to find fulfillment and make contributions through the profession of civil engineering," said Grigg.

—Bidez

(continued from page 3)

irentment because of "the climate, the lake and the university." He and his wife have been active in the university community in other ways as well. She has volunteered with the Kappa Alpha Theta sorority and he has served as an advisor to Sigma Chi. As a member of a local Rotary Club, he has volunteered to assist foreign students.

—Wellbaum

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programs, exploring the use of technology in alumni relations and fundraising, and raising support to help meet the needs of the college, including funding for scholarships, faculty support and the Wilmore renovation project. If you have an interest in supporting the College of Engineering or would like to learn more about the college's needs, students, or alumni activities, please contact me or Karen Sharpless in the Engineering Development Office at 334-844-2736.
Meeting engineering alumni has been a valuable asset in setting goals

As my first anniversary with the College of Engineering Development Office approaches, I want to take an opportunity to thank our many engineering alumni and friends for their guidance and support, as well as our department heads, the dean's office, and members of the Alumni Engineering Council. My business background and corporate development experience have served me well in making the transition to Alumni Development. And while I earned my undergraduate degree at Auburn, I find myself learning more and more about the university as well as the college's alumni, departments, projects, students and needs.

This past year I've spent my time coordinating our phonathon and our annual giving efforts, including a special Wilmore Laboratories phonathon; assisted the Minority Engineering Program in raising support; helped in the development of new brochures; and explored and planned new development efforts, including a corporate partner program, a young alumni program, and regional engineering receptions.

Most importantly, I spent a lot of time meeting and working with one of our most valuable assets, you — our alumni. I've been impressed with the quality of the engineering alumni and have enjoyed the opportunity to meet with many of you to update you on Auburn and the College of Engineering.

For the remainder of 1999 I will be working with the our engineering departments to develop corporate partner (continued on page 15)