A message from the dean

Moving from Ramsay to Samford: new challenges

A few weeks ago I was called to the president’s office, where Dr. Muse informed me that I was being named as the institution’s interim provost, succeeding Paul Parks, who had earlier announced his retirement effective Sept. 1.

A lot of emotions ran through me as I listened to his words, particularly what it would mean to me in terms of the College of Engineering — which is what, in essence, has been my life here at Auburn for the past 10 years.

As many of you already know, I accepted his offer of this position, until such a time as a successor to Dr. Parks is found. My wife Myrna, who is at the same time my closest supporter and most critical sounding board, was surprised but comfortable with my decision. Although it’s often been to her chagrin, she knows I love a challenge.

And this is a challenge that excites me. Acting as provost, I will be looking at a broad range of issues now facing Auburn, and look forward to the opportunity of helping to address them. Philosophically, I would rather be in the middle of the fight than on the fringe.

Funding, of course, is the main issue facing us today, not only in engineering, but for the university as a whole. State-appropriated support of higher education in Alabama has steadily eroded over the past five years, forcing us to develop priorities in our mission, and as a result, to reorganize our structure and begin eliminating low-priority programs. At the same time, we are looking to enhance those programs that are central to our mission.

As co-chair of a special commission organized to review the role of the university, I have already been deeply involved in this process. Created by the university’s board of trustees in April and composed of five trustees, three administrators and two faculty members, we have struggled to define the mission and mode of operation of a university in transition. (Co-chair is Ed Richardson, state superintendent of education — ed.)

While there are a lot of issues facing us, I feel that in all fairness I can no longer single out engineering in terms of an advocacy role — this will now be in the province of our new interim dean of engineering, Larry Benefield, who has been serving as associate dean for academics.

I can tell you that the College of Engineering represents a quality component in the overall mission of the Auburn University.

In fact, over my past 10 years as dean, I have seen the college grow stronger, not weaker, which I should quickly add, has been the result of the faculty’s commitment to instruction.

Transition

Dean of the College of Engineering for the past decade, William F. Walker has moved to Samford Hall to serve as interim provost, a position he assumed Sept. 1. Larry Benefield, associate dean for academics, is serving as interim dean; CE’s Joe Morgan and Nels Madsen of the mechanical engineering faculty will share duties in the position of associate academic dean.
Larry Benefield assumes engineering leadership role

Anticipating changes required by the transition to the semester system and preparing for a fall quarter accreditation visit by ABET (the Accreditation Board for Engineering and Technology) have kept department heads and personnel in the dean’s office increasingly busy since the beginning of the year, according to Larry Benefield, interim dean and former associate dean for academics.

"In terms of the university’s transition to the semester system in the fall quarter of 2000, the central administration has asked us to closely review all of our curriculum models and take this opportunity to update them," Benefield notes.

"The guiding principal in this effort has been not only to convert our courses in a way that will provide minimum disruption to our students' progress toward their degrees, but to look at the changes that will be taking place in engineering education as we begin a new century," he adds.

A 120-hour curriculum model has been put in place in terms of the university as a whole, which translates into a four-year program, according to Benefield.

"We anticipate that most engineering curricula will come in around 128 semester hours, for several reasons," Benefield points out.

"Foremost, the College of Engineering has a commitment to provide the technical basis for our engineering students that it does not incur a graduation penalty in terms of our basic requirements. Given these constraints, we have had to very carefully develop our offerings in such a way that every hour counts."

Benefield adds that the conversion to semesters is being structured in such a way that progress toward graduation by students who began under the quarter system will not be delayed.

"We will work with students on an individual basis as this change takes place," he notes. "It has traditionally taken students in engineering just under five years to graduate, and we expect to continue in this mode."

"While the semester transition has no direct impact on ABET accreditation, we have kept a very careful eye on any collateral effect," Benefield notes. "We do not anticipate any problems with the accreditation process, and will have our semester transition materials into the stream by the Oct. 1 deadline."

College administrators are looking toward six-year re-accreditation terms for all departments within engineering.

The Department of Textile Engineering will be reviewed for engineering accreditation in a move that Benefield says anticipates the industry’s needs for greater numbers of engineers in the future.

"We have in the past put our focus in textiles on the technological, chemical and management areas in response to the needs of the textile community. With increased automation, computerization and global competitiveness, we are now addressing the need for more engineering-based graduates, and have assembled the critical mass of faculty expertise and credentials needed to take advantage of the opportunities that are being created in textiles."

On a college-wide basis, the most noticeable change being made to the curriculum is the development of a new "introduction to engineering" course that will provide students with an opportunity to enhance their computer skills, become acquainted with engineering problem solving, and begin the development of analytical skills important to the upper level courses that they will take.

Benefield also points to intangible benefits such as the opportunity for new students to meet with engineering faculty early in their college careers.

"As our graduates know, their first two years at Auburn were spent study-
Wilmore plans

Project engineer Hugh Fellows, left, and John Owens, associate dean for research, review updated plans for the $12 million Wilmore renovation. The design phase for the project was lengthened to address environmental upgrades in neighboring Ross Hall, which will be incorporated into the overall renovation process. Bids for the project will be let soon, with preliminary construction work anticipated to begin toward the end of fall quarter.

Carlisle scholarship tops university grants

Dwight Carlisle, the retired president and CEO of Russell Corporation, who helped transform the small-town active wear manufacturer into a world-wide name, has established Auburn University’s largest scholarship award.

The Dwight and Sarah Carlisle Presidential Endowed Scholarship Fund will reward an outstanding engineering freshman with a scholarship of up to $10,500 yearly, the approximate cost to an in-state student for an academic year.

“Through this scholarship, Dwight Carlisle reaffirms his commitment to the future of technology education — and in turn the economic competitiveness of our state and nation. The Carlisle Presidential Scholarship will be the highest honor for an incoming freshman at Auburn University and will enable the College of Engineering to recruit and retain the technological leaders of tomorrow,” said William F. Walker, speaking as dean of the College of Engineering.

In keeping with Carlisle’s vision of preparing students for leadership roles in the global economy, he and his wife have asked that extra consideration be given to scholarship candidates who express an interest in foreign language studies.

“The future of American technology (continued on page 9)
State of the art

David Dyer, left, head of the Department of Mechanical Engineering, and 1934 graduate Clarence Killebrew, were on hand for the dedication of the fully-instrumented testing and diagnosis facility, which features a diesel engine totally integrated into a computer interface.

Facility weds test engine, computer analysis

A gift by 1934 mechanical engineering graduate Clarence Killebrew of Boca Raton, Fla., will allow the College of Engineering to open a sophisticated new engine testing facility.

Consisting of a fully-instrumented Cummins Engine Company, Inc., diesel valued at more than $26,000, it "represents a one-of-a-kind, self-contained testing and diagnostic unit that is a state of the art design with computer accuracy beyond imagination," Killebrew said of the engine being donated.

"It will serve Auburn University’s College of Engineering for many years to come."

The engine is a six-cylinder in-line design that displaces 661 cubic inches, and is commonly used in heavy industrial applications.

"By instrumenting this engine through a computer we will be able to access 35 to 40 variables, and observe how changes in parameters affect its operation," says David Dyer, head of the Department of Mechanical Engineering.

"Of particular interest will be our ability to gain students a hands-on experience that will allow them to understand the difference that often exists between calculations and actual results," he said.

Killebrew, who spearheaded the drive to install the engine in Auburn’s engineering laboratories, said the Cummins Engine Company also made the gift possible through its long-held reputation for corporate contributions to education.

"This laboratory would not be in place if it were not for the determination of Clarence Killebrew," said William Walker, dean of the AU College of Engineering. "This contribution comes at a time when we are looking to upgrade all of our laboratory facilities, as we move engineering at Auburn into the future."

Discover Magazine Award to Ron Barrett

An Auburn University engineer who has made ground breaking advances in his research on “smart materials” has won the 1998 Discover magazine Award for Technological Innovation in Aviation and Aerospace.

Ron Barrett of the aerospace engineering faculty received the award during a ceremony held Walt Disney World’s Epcot Center in Orlando, Fla., over the summer.

Barrett led an Auburn engineering team in developing a helicopter rotor made of “smart materials” and free of the mass of moving parts that make up the traditional rotor hub.

Barrett beat out three other finalists for the Discover award, including James Blackwell, the chief designer for Lockheed Martin’s F-22.

The other finalists were Dennis Roach of Sandia National Laboratories for his work on a composite material for pachting aircraft and James Cycon of Sikorsky Aircraft for his work on the Cypher, a robotic warplane.

Discover said of Barrett’s work: "Controlling a helicopter requires constantly changing the angle of the blades on its spinning rotor — a mechanically complex process involving thousands of parts that need frequent inspection and (continued on next page)"
Meller brings undergraduates into Russell partnership

The partnership between Auburn University’s College of Engineering and Alexander City-based Russell Corp. is a prime example of how two parties reap the benefits of a close working relationship.

Since 1993, Russell Meller, a faculty member in the Department of Industrial and Systems Engineering, has been working with Russell to develop efficiency improvement systems for the company’s distribution centers.

Meller began his association with Russell as an engineering consultant in 1993 and worked with the company as an engineering faculty intern during the summer of 1994.

“That summer, I looked at a number of their material handling systems and at different ways to operate them,” Meller said. “The company is interested in improving or adding value to these processes, which move product within their facility from point-to-point.”

His association with Russell has since expanded to include various student projects involving 10 undergraduate and two graduate engineering students.

“Russ turned that first summer internship into a true partnership between the Auburn University Industrial and Systems Engineering Department and Russell Corporation,” said David Booth, Russell’s vice president of Distribution, Traffic and Transportation. “I feel that both organizations have benefitted from the relationship.

“The students have taken the concepts they studied and developed practical applications for evaluation and use within our company. Our company enjoys the benefit of an outside perspective in evaluating and working with our operations.”

Among the projects worked on with the company by Meller and his students are:

- Analysis of the company’s flow rack area, system software and development of a simulation experiment to improve the distribution process.
- Participation as a member of a three-year planning team.
- Development of a strategy for improving performance of the automated storage and retrieval system to reduce travel and cycle time.

Russell Corp. continues to work with Meller on a regular basis and has plans for future projects involving Auburn’s Department of Industrial and Systems Engineering, according to Booth.

“Dr. Meller has become a familiar face at Russell Corporation’s distribution centers,” Booth said. “His association has been on some high priority projects, and we have plans for other projects in the distribution area involving Auburn University and Russell’s group.”

Engineering Economist
Chan Park and Angeline Honnell plan the next issue of the Engineering Economist, a quarterly journal published by the American Society for Engineering Education and the Institute of Industrial Engineers.

Park, Honnell team up on academic journal
Chan Park of industrial and systems engineering has been named editor of the Engineering Economist.

The quarterly refereed journal is published jointly by the engineering economy divisions of the American Society for Engineering Education and the Institute of Industrial Engineers.

“The Engineering Economist is the journal in its field,” says V.E. Unger, head of the Department of Industrial and Systems Engineering.

“It is the only publication devoted to the field of capital investment analysis and related topics in the private and public sectors. Anyone working in that area will now know that one of the leading experts in the field is at Auburn University.”

Park — the sixth editor of the publication since it was established in 1955 — succeeds Jack Lohmann of Georgia Tech, who was editor the past six years.

He announced that he has appointed Angeline Honnell, an assistant editor in the College of Engineering, as managing editor of the Engineering Economist.

“She will do technical copy and format editing of accepted manuscripts, process and track all manuscripts through to publication and be the contact person for the authors, editor, area editors and publishers,” said Park.

Barrett (continued from page 4)
maintenance. Barrett managed to replace most of those components by developing a blade made out of a material that twists when electrified, which has no moving parts. The device has already been flown on a radio-controlled mini-chopper, and now Barrett is working on bigger and smaller versions.”

The finalists were selected from more than 4,000 nominees by Discover’s editorial panel.

Barrett’s research was featured among the winners and finalists in the July issue of Discover.
Faulk shows new students, parents ‘around the block’

When Nicole Faulk came to Auburn as a freshman, everything fell into place. She was already “sold on Auburn” (both of her parents are graduates), firmly committed to engineering, and she already knew a few students who were in school here.

Now she’s passing along her own Auburn experience, often to students who come here with the reputation of the College of Engineering as their only point of reference.

“I felt like I was a part of the Auburn family before I even came here as a student,” she recalls. “My parents brought me to a lot of football games, which is always a good starting point for the Auburn spirit.”

At the same time, the 1996 mechanical engineering graduate remembers her first few days as a freshman.

“I was nervous, and excited at the same time. And I was shy,” Faulk says. “I know that students who come here on campus visits feel like that too, and that was one of the main reasons that I began to give incoming students and parents tours of our engineering facilities.”

Involved in the College of Engineering’s Cupola Society, a service honorary whose members serve as ambassadors to the dean’s office, she is one of a number of Cupola volunteers who give tours.

“As Cupola guides, we’re usually contacted by Engineering Student Services, which is generally the office that parents and students call or are referred to,” she points out. “Our office is near theirs in Ramsay Hall.”

“After we meet prospective students and their families, the first thing that I always do is ask the student if they have an interest in a particular engineering area,” Nicole says. “If they do, I’ll walk them down to the department and show them around. If they are undecided, I’ll give them a general tour of the college.”

Included in the general tour are visits to a typical classroom, undergraduate lab, and computer lab.

“I usually take my guests to a classroom in the Shared Classroom Building adjacent to Aerospace Engineering,” she says, “because the size of classes here is one of the most frequently asked questions.”

She notes that students are surprised at the small size of engineering classes. At the same time, she lets them know they will be experiencing larger classes as they go through introductory courses in chemistry, math and physics.

“The further you progress,” she explains, “the smaller the classes get.”

Although she graduated in mechanical engineering, she usually takes her guests to a chemical engineering lab, perhaps because it fits the stereotype of a university lab better, with students in white jackets surrounded by a sea of test tubes, centrifuges and graphic analyzers.

Or maybe because they’re in Ross Hall, right next door to Ramsay.

In addition to a visit to a computer lab, she also fields questions regarding personal computers: Do I need one? Will the one I have now work okay? What if mine isn’t quick enough or down on memory? Who gets to use the computers in this lab?

Finally, she takes them to the microelectronics engineering lab in Broun Hall, a favorite of hers since it illustrates the hands-on research environment available at Auburn — even to undergraduates.

“And, of course, many of them have questions about the Cooperative Education program. Do you have to find the job? (No, skilled counselors help match students with employers.) Are all the jobs ‘real far away?’ (Most are within a half day’s drive from campus.) Do you get paid? (Yes, but your educational goals come first.) And so on.”

Moms and dads really ask more questions than their sons and daughters, Nicole points out.

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Ginn's achievements recognized at spring graduation exercises

Electronics communications pioneer Samuel L. Ginn was presented the honorary doctor of science degree at AU’s spring commencement ceremonies in June.

He is now chairman and chief executive officer of AirTouch Communications, the largest multinational wireless company in the world. Based in Santa Monica, Calif., the company has 10 percent of worldwide cellular and related wireless business and serves 20 million U.S. customers and 11 other countries in Europe and Asia.

A 1959 Auburn graduate in industrial management, Ginn was chairman and CEO of Pacific Telesis Group, the West Coast telephone and communications giant, from 1987 until December 1993, when he spun off AirTouch Communications. The new company was created to concentrate on commercial development in the emerging field of wireless technology.

Creation of AirTouch was the sec- (continued on page 15)
CE's Dan Brown lays foundation in new SF bridge

Location, location, location. Words real estate agents live by when they counsel you where to build or buy. And words that come to mind when Dan Brown thinks back to building a paper mill in the middle of a swamp.

"Everything was there . . . access to the timber, access to water, and access to the markets," Brown remembers. "But the place where they wanted to site the mill was in the middle of three square miles of swamp, and every piece of equipment we had was stuck in it."

An expert in foundations, pilings and drilled shafts, Brown, a member of the civil engineering faculty, ended up floating the facility's power plant on a huge concrete mat the size of a football field.

"It was the most challenging project that I was ever involved in," he notes. "Because we couldn't find what you would typically think of as a foundation . . . but by using these large mats we not only made this facility a reality, but saved the company involved millions of dollars in construction costs."

It was the kind of project guaranteed to interest Brown, who has married his deep interest in geology to the technical answers that engineering provides. "in real life," as he points out.

"It's also something that I like to share with my students," he adds. In fact, it's working with students that brought Brown to Auburn.

After his graduation from the University of Texas in 1985 with a doctorate, he worked with an engineering consulting firm based in Louisiana for two years, rising to the position of chief engineer.

"I was doing the same kind of work that I had done following my bachelor's and master's degrees from Georgia Tech, which in this instance involved reviewing the work of project engineers and tackling some of the more complex assignments myself," Brown explains.

"It was enjoyable in terms of the field work, and handling the performance trials . . . being around heavy equipment was even fun in a boyish kind of way. It was definitely where the rubber met the road, and where I learned that theory and observation don't always meet."

At the same time, he observes, he felt that he would enjoy being in a teaching and research environment.

"Breaking ground on new theoretical concepts began to intrigue me," he points out. "And when I got a call from Auburn saying that they were interested in bringing me on to the faculty, I was ready."

Brown had already interviewed at two other institutions, but felt that he fit in best at Auburn, a decision he has never regretted.

"I was born in the South, in Augusta, Georgia, and have always felt most at home in the South," he relates. "The fact that there always seemed to be an Auburn man on any big project was something of a sign."

And in terms of the student body, Brown notes that Auburn is a fertile and satisfying ground for teaching.

"I think that in our graduate students (continued on page 15)
Overfelt takes casting process into new orbit

Auburn University researchers, working with NASA and industry partners, have taken a key first step toward making cast metal products used in homes, automobiles and aircraft less expensive, safer and more durable.

Engineers and scientists at Auburn, Anter Corporation of Pittsburgh and TPRL Inc. of West Lafayette, Ind., are working with the American Foundrymen's Society, several industrial organizations and the National Aeronautics and Space Administration to measure the properties of molten metals on the ground and in the near-weightless environment of low-gravity.

By developing significantly more accurate measurements of thermophysical and metallurgical properties of molding materials, space-related research may shave months off the casting process and improve the quality of metal products, says Tony Overfelt, director of the Solidification Design Consortium at Auburn.

Cast metal parts are formed by pouring molten metal into a mold and then allowing the metal to freeze.

"Developing a reliable casting process is difficult and time consuming," Overfelt said. "Casting has always been a trial and error process. This has lead to an industry average of 10 percent of all parts produced by casting being rejected. This rate can go up to 50 percent when casting some complicated aircraft turbine blades."

Cast metal parts are used in 90 percent of all durable goods such as washing machines, refrigerators, computers, stoves, lawn mowers, cars, boats and aircraft. Sales of cast parts in the United States alone total more than $25 billion a year, according to the AFS.

High-temperature metal alloy parts for the aerospace and auto industry can make aircraft and vehicles stronger, lighter and more efficient, but can require three to four years to develop an effective process for complex geometries. In addition, large structural aerospace parts will often require hundreds more hours of expensive weld repair which can exceed $50,000 in costs to correct casting defects.

To shorten this process, manufacturing engineers need to understand the thermophysical and metallurgical properties of the new alloys. These properties include physical, chemical, thermal and metallurgical characteristics.

When studied on the ground, however, scientific measurement of the properties has often been incorrect because of gravity-induced convection, sedimentation and reaction between the molten alloy and its mixing containers. For some alloys, simply touching the molten alloy for the measurement itself irreversibly changes the alloy's composition — making measurements of materials data unrepeatable and inaccurate, Overfelt points out.

In an effort to precisely measure alloys without a container, Auburn researchers are conducting experiments in near-weightlessness aboard a KC-135 aircraft flying a series of parabolic arcs. Flying in this unique roller-coaster pattern of ups and downs, researchers are able to free-float droplets of molten alloys for about 20 seconds for each down-hill run and take their measurements without the alloy touching a container.

"We started with experiments on the ground and obtained the very best materials data possible," Overfelt said. "Then we went to low-gravity to refine our research. By using the near-weightlessness environment aboard NASA aircraft, we've been able to get extremely interesting results that get us excited about the future possibilities for precise measurements on the International Space Station.

"Our goal is to continue to produce accurate measurements for the critical alloys used by the casting industry. We will utilize a combination of ground-based and space-based research techniques depending upon the specific..."
ME's Raju brings real world issues to the classroom

A grant from the National Science Foundation will make it possible beginning in the fall for Auburn University engineering students to study real business and industry issues as part of their classroom training.

The two-year, $200,000 NSF grant provides support for developing case studies involving manufacturing and business issues from operating companies. These case studies will help students apply theories they learn in class and also help them understand the financial aspects of the engineering business, says Chetan Sankar, a member of the management faculty in the College of Business.

Sankar and P.K. Raju of the Department of Mechanical Engineering have been working together to bring real-world issues into the classroom in order to better prepare students for their professions. Teaching effectiveness of the program will be assessed by professors Gerald and Glennelle Halpin of the College of Education.

"The biggest advantage students will get from this is the experience," Sankar said. "I hear frequently from employers that the students know all the theory, but they have no idea what happens when this theory is applied to solving business and industry problems."

One of the training objectives to help students learn to make decisions that provide the best solutions to manufacturing problems with minimal financial losses due to down time, lost production and maintenance or replacement, Sankar explained.

"Through these case studies, students will see the impacts of what happens when they chose different alternatives," he said. "They will see for example, how big a turbine is, and see how much it costs when production must be stopped to make repairs when something goes wrong."

The new course will be available fall quarter, Raju adds.

"It will consist of eight different case studies and will highlight engineering design, decision making, management problems, risks and financial concerns," he said.

All of the case studies taught in the classroom will be developed with the aid of several industries. One partner in the project is Crist Power Plant of Pensacola, Fla.

"We have been working with everyone at the plant, from the manager down to the people on the floor," Sankar said. "We want students to see exactly what goes on. We aren't just developing the study from a little office cubicle. We are going to show students how problems are solved at all levels in industry."

Raju and Sankar also have received full support from the three colleges involved in the research, as well as the university's Thomas Walter Center for Technology Management in developing this project.

"The university supported us from the beginning," Raju said. "This is the first time we have received such a large grant for curriculum development. Of the 530 grant proposals submitted to the NSF, only 110 were awarded, and only 20 of those were in the area of engineering."

Carlisle scholarship

(continued from page 3)

depends on the ability to educate men and women who can succeed in the world marketplace. By establishing this scholarship, Sarah and I hope to encourage our region's most outstanding students to pursue a quality engineering education with a view toward the part they will play in ensuring our nation's competitiveness in the twenty-first century," explains Carlisle.

The scholarship, to be awarded in the fall of 1999, will cover the costs of tuition, fees, room and board, books, and other expenses of an in-state student. Preference will be given to high school students from Tallapoosa County, where Russell Corp. is headquartered in Alexander City.

Minimum selection criteria include an ACT or SAT equivalent of 31 or greater and a high school academic grade point average of 3.5 on a 4.0 scale. The scholarship recipient will have the opportunity to receive the scholarship until graduation.

Network best

Network engineer Jerry Carter won "Best of Conference" for a paper given in Seattle at the USENIX LISA'NT conference on the integration of Microsoft operating systems into large-scale networks, a signal honor given the depth and breadth of presenters there. Carter based the paper on his experience in integrating the College of Engineering's network of personal computers into a heterogeneous network of UNIX and PC systems.

Microgravity casting

(continued from page 8)

ics of the alloy and process in question. This information and these techniques can then be used as a common standard for casting producers. It will result in a common database of materials properties and enable standardized recipes allowing American manufacturers to compete more effectively worldwide."


The Space Product Development Office sponsors the commercial use of space technology to develop new economic opportunities and products. Auburn is one of NASA's 10 Commercial Space Centers which serve as a focal point for commercial partnerships.
Engineering Outreach

Gregg Ruff, right, who manages the engineering and professional development program for the College of Engineering, and Steve Taylor of the Department of Agricultural Engineering, talk a break between takes for a new videotaped outreach program. Courses such as this one may be used to meet the continuing education requirements of state licensing boards — and viewed from the convenience of your living room or office. A catalog of more than 40 courses is available, and may be ordered by calling 1-800-446-0382.

Engineering Extension Service is offering wide variety of outreach learning experiences

The Engineering Extension Service is offering a wide variety of distance education courses beginning this fall, including videotaped courses, live seminars and conferences.

Six new topics have been developed for the PRECISE seminar series to assist registered professional engineers and land surveyors interested in recertification, according to James O. Bryant, associate dean for engineering extension.

The programs are being presented in live seminar format in the Birmingham area, with 11 topics included in the fall, 1998, series.

Topics include:

- Electrical power system fundamentals
- Business practices for small engineering and consulting firms
- Legal liability
- Ground water hydrology
- Soil testing
- Construction seminars focused on timber, concrete and masonry

Additional seminars and short courses are available through the Engineering and Professional Development program (EPD), which serves the engineering community through certification courses delivered to the home or job site through videotapes.

New fall videotape course topics include GPS, GIS, concrete basics, steel and wood structural design, OSHA guidelines, and how to work with electrical contractors.

Many other topics are available through the EPD program, and course work can be custom-designed around the needs of individual engineers and firms.

For more information on these programs, contact the Engineering Extension Service, 217 Ramsay Hall, Auburn University, AL 36849, or by phone at (334) 844-4370 or 1-800-446-0382.

Birmingham Office for Extension closes, program moves to AU

The Birmingham office of the Auburn University Engineering Extension Service will be phased out of service on Sept. 30, according to James Bryant, associate dean of engineering extension.

“We will continue to offer a number of programs to the Birmingham engineering and business communities,” Bryant said. “They will originate from the main campus, however, in an effort to streamline our continuing education program.”

AU’s Engineering Extension Service, in place in Birmingham since 1967, served about 1,500 clients annually over the past several years, said Henry Avery, who has directed AU’s engineering extension in Birmingham for more than two decades.

We have offered seminars, conferences and short courses in areas that include instrumentation, control systems, ventilation, electrical systems, maintenance, project management, legal aspects of construction, production planning, and engineering management,” he said.

The decision to phase out the Birmingham Office of Engineering Extension as a primary supplier of continuing education and industrial engineering expertise was a hard one,” said William F. Walker, dean of the College of Engineering. “It is a reflection not of a lack of support by the Birmingham business and engineering communities, on which it has been solidly based, but because of the continuing shortfall in state appropriations over the past four years.

“Simply put, it is no longer possible for us to support an off-campus office of this type when there are not enough funds being made available to keep the caliber of our programs on the main campus at the level of quality that has come to be expected of Auburn Engineering.”

Walker noted in particular that the close, hands-on approach that has been a hallmark of Auburn Engineering's Birmingham office would be a casualty of moving the management of continuing engineering education programs to the main campus.

(continued on next page)
—Larry Benefield looks to curriculum enhancement

(continued from page 2)

ing the basic sciences necessary to an understanding of engineering fundamentals, as well as laying down a liberal arts base shaped by the core curriculum.

"By introducing students to our engineering faculty early on, we hope to instill in them a closer relationship with the college from the outset of their careers at Auburn. In a sense, we want to 'anchor' our students to engineering."

Following the accreditation visit this fall, the College of Engineering will begin to put its efforts into the development of curriculum content, assessment tools and feedback inputs from career-level engineers, to meet new ABET criteria that will be put into place by the next general accreditation visit in 2004.

"This will represent a major effort on the part of engineering at all levels — professional, educational and institutional — to meet the needs of the coming century," Benefield notes. "A lot of work has already been done toward these new standards, but in a sense we are still on the front of the curve, and a lot remains to be done."

Finally, Benefield says, the College of Engineering is taking a hard look at requiring all incoming students to own their own personal computer.

"More and more engineering schools in our peer group are going toward this," Benefield explains. "We have come to the point where it no longer represents a luxury for students, but a very real necessity."

Among the questions being clarified in a move toward this criterion are ones involving equipment, facilities and teaching methods.

"We are putting a lot of study into the benefits of going to a single vendor on these computers in order to make software upgrades seamless, provide on-site warranty and repair services, and provide commonality of equipment so that troubleshooting will be more easily accomplished.

"At the same time we have to look at our facilities — for instance, in 'plugging and porting' classrooms to offer interactive instruction, to decisions on the space we now allocate to computer labs. If our students come in with their own computers, we will need less space for common lab areas, but we still need these kinds of facilities to back up those who have computers that have gone down, or who need more advanced computing facilities, such as Sun workstation areas."

Benefield notes that in a sense the move to requiring students to have computers is evolutionary, and represents just another step in the continual sophistication of engineering tools.

"At the same time, we recognize our obligation as a land-grant institution to make education affordable to all of our students, and the purchase of personal computers will be a sizable investment to some. We hope to develop a loan program that will address this challenge, and allow all of our students to work on the cutting edge of engineering innovation."

—Birmingham office

(continued from page 10)

Unfortunately, given the lack of support that we are experiencing in Montgomery as it relates to all of our programs, we are doing what we can with the resources made available to us."

Bryant said it will continue to be essential for engineers to update their skills in the fast-moving technological arena in which they live and practice.

"In terms of our responsibility there, we plan to continue to provide innovative approaches to engineering education, particularly in the continuing education field. We have already invested heavily in video-based programs, both in terms of real-time satellite conferencing, and in Internet and videotape delivery methods. We will continue to refine these delivery mediums as we move into the future."

Alumni Engineering Council supporting selection process

The Auburn Alumni Engineering Council supports a new direction in the selection of members of the AU Board of Trustees, says Charles Jager, chairman of the council's public affairs committee.

"The membership of the council passed a resolution at its last meeting in which we endorsed new selection criteria proposed by a group of concerned alumni who have come together in a group called The Committee to Put Auburn First," said Jager.

The committee's recommendations have been endorsed by the board of directors of the AU Alumni Association, said Jager.

"The Auburn Alumni Engineering Council is entirely supportive of these new criteria, and its membership wishes to reiterate its desire to work with all of those whose concern is placed in trust to Auburn's future well-being," said Jager.
A letter from Cookeville, Tenn.

When Peter Jones of mechanical engineering, who serves as the MiniBaja faculty advisor, circulated his e-mail note around the college, we all felt the kind of lift that comes when teaching, leadership — and fun — come together. It is in this spirit that we share this letter, written after the Southeastern regional competition was held in Cookeville, Tenn., earlier this year. Pictured are Jones with framed photos given to supporting donors; women’s team captain Jacque Cole following her bone-jarring performance in the field trials; and the men’s and women’s cars in action.

Ladies and Gentlemen: Both MiniBaja teams returned last night from the three day competition in Cookeville, Tennessee. We don’t have a copy of the detailed results yet, but we do know that the men’s team was ninth overall, and the women’s team was eleventh (out of 50). Considering that the men’s team rolled out a completely new (for Auburn) design concept, and had to repair several breakdowns during the endurance race, a top ten finish is outstanding and makes the picture for next year very bright indeed. Considering that the women were a rookie team, and made the mistakes that rookies inevitably are prone to, that they got within one point (out of 1300) of a top ten finish is absolutely astounding. No other first year team came close to them. Even the simplest game of what-if easily puts the women in the top ten, and the men in the top five. After this competition, Auburn’s reputation as a fine Baja school is stronger than ever. The highlight of the competition was the women’s run through the suspension and traction event. The course featured telephone poles, railroad ties, right angle turns, and up and down slopes that could not be negotiated on foot. Many cars could not negotiate the course at all, and everyone had put this event off for last, so there was a large crowd gathered. With Captain Jacque Cole driving, the car leap over the first telephone pole and then came to a dead stop, hung up on the second. A one inch diameter solid steel jackshaft, one foot long, had been bent into a two inch bow by the force of the deceleration. It was now 3:30 p.m. on a Friday afternoon in Cookeville, and the prescription was for a new hardened steel shaft with a machined keyway. Somehow the women filled the bill and got it installed in time to take their second run. This time, Jacque took a better line and got through the telephone poles. She rattled through another set of poles and then up the first hill. The ground clearance wasn’t enough, and the car hung up on the top. Jacque hurled herself back in the seat to knock the car back down the hill so she could take a second run at it. Hung up again. More body slams (for those of you who don’t know her, Jacque weighs about 80 lbs, dripping wet), hung up the third time, but wriggled over on the fourth. Now careening around tight turns, down the first (nearly sheer) drop-off, and through the first set of railroad ties set at 45 degrees to the course. The women saved weight and complexity by doing without a rear suspension, and somehow the bounce of the tires was inadvertently tuned just perfectly with the set of the railroad ties to keep the rear bouncing high in the air and the crowd roaring because of the grit Jacque showed in the hilltop hangup. Then around another hairpin turn, up another impossible hill, and down the second drop-off with Jacque driving hell for leather. The second, and much longer set of 45 degree railroad ties left the car bucking like a mad bull shot with red pepper spray. With the crowd screaming and bits and pieces of the course boundary marker plastered all over it, the car landed in a cloud of dust at the finish. That picture was shown at the awards banquet and got the longest, loudest applause of a very enthusiastic evening. Jacque’s wild ride will go down in Baja history, at Auburn and everywhere else.

Overall, the women’s car performed well. The gearing could have been lower for more low end acceleration and the fender system could have kept the engine driper. But so much for 20/20 hindsight. The car handled well and the frame demonstrated that it was perfectly strong. It kept running to the end of the devilishly tough endurance race without breakdown (though time was lost searching for a missing piece of required safety gear), a feat that can be boasted of by very few of the cars entered. Captain Jacque’s welding skills and outstanding project management stood up to an extreme test. Jacque also drove the water maneuverability event, after which the fenders were extensively modified to keep water out of the air cleaner. Christie Coplen demonstrated great driving finesse, turning in a very high finish in the land maneuverability event (a slalom course). Christie also turned in the best endurance lap times, and took the very demanding long, muddy, twisting, steep downhill like an expert skier. Christie, co-designer/builder of the outstandingly tough and responsive steering and front suspension system, pulled the replacement jackshaft out of her hat, and her business acumens kept the team financially afloat through expert fundraising. Christie also did the acceleration/top speed braking run. The gearing was too tall for much acceleration, but the car stopped on a half-dime. Julie Borstorff, the other half of the steering/front suspension team (motto: ‘no way is this going to break!’), made an art out of chasing other cars down in the water in the endurance race, leaning to trim the car out just right for the
best propulsive performance and pulling lap upon lap horse races with a very quick Virginia Tech car. Julie also turned in a good score in the weight pull.

Julie and Sherilyn Posey rebuilt the car's flotation late at night before the endurance race, after Jake's wild ride left bits and pieces of foam scattered all over the course. Sherilyn drove cleanup in the endurance race, picking up those extra laps while most of the other cars were going to pieces. Andy Hood served as pit boss and on the refueling crew, imposing order on what could easily have become an unworkable litter of parts, tools, equipment, life support systems (fluids, food, and shade), and the other debris of racing. The whole crew stayed up more nights than their fogged minds can calculate, learned more, worked harder, and became a team.

Special notice must be given to Adam Barnes, who left the men's team to help the women. Adam worked as long and hard as anyone, and longer and harder than most, on turning the women's cars into reality. As a measure of how much he meant to the team, note that the women's car is named 'Adam'.

There were no other women's teams at the competition (although a few of the other teams had a few woman team members). In their first year, starting from scratch (a question at one of the earlier meetings, which none of the other team members were confident enough to answer, was: “What is this ‘hub’ thing you keep talking about?”), an understaffed team of Auburn women with no automotive experience fairly beat 39 other schools, mostly veterans of MiniBaja, and lost no honor to the other ten. But for a few bad breaks here and there, the women would have been well into the single digits in overall place. The glow left over from this success will last for a long time.

The women's team will suffer 75 percent graduation loss of its key workers. Unless a new core of dedicated women comes forward before next fall, it appears that the women's veterans will lend their formidable Baja skills to a united Auburn Baja 99 team.

The men's car was named 'Humpty-Dumpty' because even before the competition there seemed to be a lot of putting it back together again. But, after it was all over, when asked what they would change in overall concept for next year's competition, the team replied 'nothing'. Humpty is Auburn's first independent rear suspension car, requiring a completely new drivetrain arrangement, and our first double-A-arm front suspension car, requiring a whole new look at the black art of steering and suspension set-up. The performance advantages of this complexity were made clear when Matt Middleton flew through the tortuous suspension and traction course with the car's body moving on a straight line and all four wheels leaping up and down like drumsticks on a long roll. It seems that a suitable instrument has been found for Matt's formidable driving skills. The problem was the steering rack, performed smoothly (thanks to Sam Sipper's design/construction skills), but the team underestimated the steering loads imposed by a Baja course, and the rack extension rods bust time after time, even after reinforcing them the night before the endurance race. Still, a Baja pit crew can fix anything, and the car was repaired and thrown back onto the course twice during the endurance race (at the cost of an hour and a half of a four hour race). Daniel Orille drove the acceleration/speed event to open the competition.

The speed was fine, but two wheel braking was certainly not best. Next year all four wheels will have brakes. Captain Dale Butler put the car through the weight pull for a good score, and drove the water maneuverability. That event was made easy by Stephen Chamblee's skills as a naval architect. The car floats high and level, propels and steers well, and behaves in the water as well as any duck. Cory Nickens completed the land maneuverability (slalom) event in fine style. Bobby Repligge, the men's front suspension/steering wizard, made it clear at the start of the endurance race that we had a contender by turning in some quick lap times. Nathan Howard (interim captain during Dale's training with the Marines, and the father of our through-the-barrier driver) kept up the march, but now the steering breakdowns started to get more frequent. The whole crew, even Robby Daily, who couldn't drive because of a visit by the 24 hour bug, sprinted back and forth between the pit and the down car to get the spare rack installed, and then repaired the original rack, and then reinstalled the original rack when the spare rack broke down. Stephen finished up the endurance race, looking for that fine edge of just how hard the car could be pushed to get more laps without causing another breakdown.

The men's team built a good car, campaigned it hard, and got a good finish. Their what-if game is as tantalizing to play as the women's, and anticipation for next year is running high. A good team of good people worked hard, and their product shows it. The men's team graduation loss will be minimal, though we're always looking for good freshmen and sophomores, or anyone who wants to work hard for a winning team.

The Auburn MiniBaja effort is primarily financed by the Mechanical Engineering Department, and we are very grateful for their vision in supporting this fine educational endeavor, which provides visibility and a shared experience to the entire College of Engineering. This year, in building two cars on the budget that usually just barely supports one, significant fundraising was necessary. The women's team rose to the challenge, receiving major sponsorships from the Chrysler Foundation and from Honda and Kawasaki of Columbus, and many other significant donations.

The men's team also beat Auburn's previous MiniBaja fundraising record.

Next year's competition will be in Orlando, featuring a tight course through sand, scrub, streams, and bogs designed by the most infamous of Baja course-meisters. Next year will also feature a great leap forward in thrills, as the Briggs and Stratton 8 hp rototiller engine, in Baja use since 1977, will be replaced with Briggs' top-of-the-line 18 hp Viek twin, a very modern engine. For some reason that we still cannot fathom, the engine will have a vertical shaft. Watch this space for creative drivetrain solutions.

Peter Jones
MiniBaja Project Faculty Advisor
Dean Walker's remarks

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tion, research and extension, often in the face of sharp odds.

I would also like to point out that the efforts of our department heads to bring new people on board has decreased the median age of our faculty to a place where the experience of our veteran faculty members has found a renewed purpose, not only in passing along the sum total of their experience, but allowing themselves to absorb the enthusiasm of new approaches and fresh concepts.

Sadly, some of these new faculty, now in the prime of a marketable career, have moved on to greener pastures. Rather than blame them, it’s our job to create an atmosphere to retain them — and we have moved in that direction by fostering the kind of ambience they seek in conducting research — and by rewarding excellence in teaching and research through such programs as the Birdsong Awards for the former, and Alumni Engineering Council Awards for the latter.

Another area in which I take pride is the tremendous growth we have experienced in computing. It was only a decade ago that we were in danger of falling behind our peer institutions in this vital area, despite some discrete pockets of strength.

We now stand hand in hand with some of the most outstanding engineering programs in the nation, with a fully networked systems of 1,200 machines spread throughout our facilities, in an environment that quite honestly outstrips the rest of the university. I credit its success to a young, innovative team of systems operators headed by Steve Henderson, who directs our efforts here, and to our alumni, who have in large part put in place the funding that began this thrust.

And of course, I can look to the improvement of our physical plant over the past decade, particularly with the building of the new aerospace building and shared classroom facility. Our current effort to renovate Wilmore Laboratories represents our latest goal in keeping our engineering facilities ahead of the curve.

In fact, we are now going beyond these efforts, and have implemented a study of our needs as they will exist ten, fifteen and twenty years down the road. This will not only include a response to specific requirements, but an effort to identify the portion of Auburn’s campus inferriorly known as the engineering quad, to more formally create an engineering identity in terms of a “home” for our students and alumni. A place you can come back to and call your own.

Maybe I’ll take some criticism for saying this — but Auburn engineers are special people. I want to make them feel at home when they return to campus, to feel an identity that no one else can.

Along these lines, I would like for you as alumni to welcome Larry Benefield, himself a graduate of Auburn Engineering, as interim dean. He faces a lot of challenges, and deserves your support.

Among his most immediate concerns are college-wide accreditation visits by ABET and CSAB, the computer science accreditation agency, this fall as well as the tough decisions that will need to be made beyond that — where our dollars in engineering will be allocated.

He will be making some tough decisions regarding areas that may be cut — and others that will be enhanced and moved to a higher level of performance. Indeed, the reorganizational efforts that are being considered at the university level will deeply impact engineering, one way or another.

He has worked closely with me over the past decade, and is aware of what I consider important in Auburn Engineering. I have faith in his judgment, and at the same time accept that as I move on, those judgments will be his, not mine, to make. Your support, and your voice, will be an important part of the criteria he considers in moving Auburn Engineering forward. It’s that thought that I would like to leave with you — and remind you as well that a part of me will always be with Auburn Engineering. I hope that you find yourself there as well, wherever you are carrying Auburn’s name.

Burson retires

Shirley Burson, who has served engineering dean William Walker as his assistant for a decade, accepts a plaque from him during retirement ceremonies held at the Auburn University Hotel and Conference Center in August. Attached to the College of Engineering since 1987, Burson came to the Auburn campus in 1971, first with the College of Agriculture, then serving in Samford Hall in administration. Frequently sought out for her ability to cut through red tape, solve tough problems, and unravel complex policy questions, she is leaving it all behind for her lifelong dream of a quiet home on the river, where the waters and the sunsets meet.
—Brown points to quality of students

(time, computer based techniques in measurement, it will provide them with a practical, design-oriented environment in looking at real-world problems," he observes. "I hope to give them a perspective as well on the leadership and responsibility issues that accompany a project like this. That's an important concept that I try to instill in our civil engineering students before they graduate from Auburn."

Those are qualities that Brown typically sees in civil engineering alumni. "I have been involved in the practice of Auburn's civil engineering for some time now, and have had the opportunity to travel extensively in my work. It's always amazing — and heartening — to find that there's always a part of Auburn that stays with our students, and a desire to give a part of themselves back to the institution in return."

Brown is relaxed but focused when the conversation turns to his own future. "One of my mentors, a professor at Georgia Tech, told me to buy a liquor store if I wanted to make money, but to become a civil engineer if I wanted life to be fun. I'm still having fun ... It's a great profession."

—Nicole Faulk

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"The parents, many of whom have been to college, know what to ask, and aren't as shy. They ask about computers, and about housing, safety issues, and the university in general."

General university tours and housing tours are both available, Nicole explains, and she sometimes refers visitors to them if they show an interest. "I always point out all of the buildings, and if I can, take them to see the formula, solar and Baja cars, all of which represent student projects to which they can easily relate and get excited about. These are fun things that catch their interest."

Nicole's own future is as clear to her as a map of the campus.

Now completing her graduate studies in mechanical engineering, she notes, "I've honestly always wanted to be an astronaut — who wouldn't! — but I'm excited about joining Southern Nuclear Corporation in November. I think it's going to give me the kind of balance and depth as an engineer that I'm looking for."

And, she adds, "Auburn's done a great job preparing me. I feel like I'm ready to move into the field as an equal to any graduate, no matter where they've studied engineering."

"I think that's saying a lot, because I came here from a small town, and I know I wasn't as well prepared coming in as some of my fellow students were. I had to adjust to the size and pace of Auburn as well, but the people here made it a lot easier than I thought. It's been a lot of work. It's been a lot of fun."

Visiting?

If you are interested in visiting the College of Engineering and wish to arrange a tour, contact the Office of Student Services at (334) 844-4310. You are also invited to visit us on our web page at http://www.eng.auburn.edu, which contains links to the various departments in the College of Engineering, as well as offices throughout the Auburn campus.

—honorary doctorate

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In 1969, he was a Sloan Fellow at Stanford University's School of Business, and he subsequently rose fast in the AT&T ranks.

Ginn was president and chief operating officer of Pacific Telesis Group before becoming chairman and CEO, a post he held until leading AirTouch into the corporate arena.
Phonathon supports Wilmore; Wellbaum joins staff

Once again, Auburn engineers have demonstrated their keen sense of problem solving by helping the College of Engineering work towards its goal of renovating Wilmore Laboratories.

When students picked up the phones to raise funds for Wilmore, the College of Engineering's primary teaching and research facility, more than 900 of you responded with a resounding yes. Many of you were contacted and asked to make a pledge to help us transform Wilmore into the state-of-the-art facility needed to teach the technologies of tomorrow to future Auburn engineers. You responded with the usual Auburn spirit and helped us raise more than $65,000, far surpassing our original Wilmore Labs phonathon goal.

Since we were unable to contact all of our Engineering Alumni during the phonathon, we are planning future mailings to help reach the overall goal of $12 million to renovate Wilmore—$4 million of which must be raised privately. If you'd like to support or learn more about the Wilmore Renovation Project, please call Karen Sharpless or Rob Wellbaum at (334) 844-2736. Thank you for investing in the future of Engineering education and research at Auburn University.

Welcome Rob to Auburn

The College of Engineering is pleased to introduce Rob Wellbaum as our new assistant director of development. He is a 1993 graduate of Auburn University, with a bachelor's degree in international business.

Prior to signing on with Auburn Engineering, Rob served as director of corporate development for the Scottish Rite Children's Medical Center in Atlanta, Georgia. His primary duty there was to build corporate relations to secure support for the Scottish Rite Foundation. He also directed the corporate major gifts program and an annual corporate giving campaign.

Now that Rob is on board, it opens the door for some exciting possibilities. His primary focus areas for Auburn's College of Engineering will include building new corporate support, working with younger alumni to build support and networks for the future, working to further develop our annual giving program, and exploring innovative initiatives using the internet and e-mail to generate support for the college.

We are excited that Rob has joined our staff. Please help us welcome him as he has the opportunity to meet and work with you. Feel free to call on Rob for assistance or to just introduce yourself. He can be reached in the office at (334) 844-1278.

You can find us on www.website

Additional information on the College of Engineering is available on our website 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.

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