

LEADING CE RESEARCH SCHOOLS

% CE DEPT. INCOME
FROM RESEARCH

INSTITUTION	%
U. of Florida, Gainesville	71
U. of Wisconsin, Madison	68
U. of Arizona, Tucson	67
U. of Tennessee, Knoxville	65
U. of New Orleans, New Orleans, La.	65
U. of Illinois-Urbana-Champaign, Urbana	63
U. of Connecticut, Storrs	60
U. of Minnesota, Minneapolis	58
Iowa State U. of Science & Tech., Ames	57
Michigan Technological U., Houghton	54
Purdue U., West Lafayette, Ind.	52
U.S. Coast Guard Academy, New London, Conn.	44
U. of Iowa, Iowa City	43
U. of Houston, Houston, Texas	42
Cornell U., Ithaca, N.Y.	39
Va. Polytech. Inst. & State U., Blacksburg	37
U. of Wisconsin, Milwaukee	37
U. of Toledo, Toledo, Ohio	31
U. of Pittsburgh, Pittsburgh, Pa.	30
U. of Colorado, Boulder	26

Source: ENR data

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Honoring the past, shaping the future

Fall 2002 Civil & Coastal Engineering

Message from the Chair

This is a year of celebration at the University of Florida. The 2002 – 2003 academic year represents the University's Sesquicentennial birthday (150 years). It is a time of looking back to see what we've accomplished, of looking forward to where we're going, and of assessing how our current state can be used to get where we want to be.

It is, therefore, my pleasure to share with you once again noteworthy activities of the Department of Civil and Coastal Engineering. Of foremost importance is the recently unveiled new strategic plan for the University. The goal of the strategic plan, as set forth by President Young, is to raise the University of Florida into the ranks of the nation's great universities. To achieve this goal, the University will concentrate its resources in four core colleges: The College of Liberal Arts and Sciences, The College of Medicine, The College of Agriculture and Life Sciences and The College of Engineering. The Department of Civil and Coastal Engineering has responded to the challenge by restructuring its curriculum and focusing its research activities.

Beginning in Fall Semester 2003, the Civil and Coastal Engineering Department will offer a revised curriculum for the BSCE Degree (see pg. 3). The new curriculum will afford our students the opportunity to select from six elective tracks: geotechnical, construction, structures, transportation, water resources and general civil engineering. The new curriculum was initiated for several reasons: 1) to be consistent with programs at our peer institutions, 2) to better satisfy the needs of the profession and 3) to complement our 3 – 2 BS/MS program. The response from our students has been overwhelming in favor of the new curriculum and we anxiously look forward to its implementation next Fall Semester.

In the future, civil engineers will face difficult challenges to sustain our nation's infrastructure and water supplies in order to serve the demands of a growing population. New technologies must be developed to protect our constructed infrastructure and water supplies from both environmental and man-made hazards. With 45 tenure-track faculty augmented by 85 support staff, the Department of Civil and Coastal Engineering is uniquely comprehensive in its ability to address these vital research needs. In response to these needs, the Civil and Coastal Engineering Department has focused its research thrusts into four basic areas: 1) constructed infrastructure systems, 2) high performance infrastructure materials, 3) water resources monitoring, assessment and rehabilitation, and 4) coastal resources monitoring, assessment and rehabilitation.

Civil and Coastal Engineering faculty are leaders in research in each of these areas, consistently attracting competitively awarded state and federally sponsored research. Research expenditures for the past fiscal year exceeded the previous year's total by more than 30%, to slightly more than \$13.5 million. This ranked the Civil and Coastal Engineering Department in the top ten in research among all civil engineering programs in the nation... GO GATORS.

Finally, I would like to thank all our loyal alumni and friends for their financial support of our program. In these times of diminishing support from the state, your support is essential to maintain the high quality of our educational and research programs you are accustomed to. It is indeed great to be a Florida Gator!!

Dr. Joseph Tedesco

CCE Faculty Activities

Bjorn Birgisson, Assistant Professor, was an invited panelist for the 2002 Annual Meeting of the Association of Asphalt Paving Technologists and for the technical session entitled "Simple Performance Testing for Cracking of Asphalt Mixtures."



Ronald A. Cook, Professor, was awarded the position of Fellow in American Concrete Institute and nominated for the International Association of Bridge and Structural Engineers (IABSE)

Working Commission on Concrete Structures.

Dr. Ahmet Dogan, Visiting Assistant Professor, and **Louis Motz**, Associate Professor, presented a paper "Regional Steady-State Groundwater Flow Model With an Active Water Table" at the American Water Resources Conference in Philadelphia, November 3-7, 2002. Dr. Motz also served on a scientific peer-review panel for the Southwest Florida Water Management District to review the methodology the District has developed for the establishment of a minimum aquifer level to limit saltwater intrusion in the Tampa Bay area.

David Hale, Researcher, upgraded University of Florida transportation engineering software programs TRANSYT-7F and Highway Capacity Software to become the first-ever commercial software packages in the world to offer genetic algorithm optimization of traffic signal timing.

William Heitman, Associate In, was appointed Director of Administrative Services for the Department of Civil & Coastal Engineering.

We are Moving!

The department moves back to a newly renovated Weil Hall in January 2003.

Our new address will be:

Department of Civil & Coastal Engineering
365 Weil Hall
P.O. Box 116580
Gainesville, FL 32611-6580

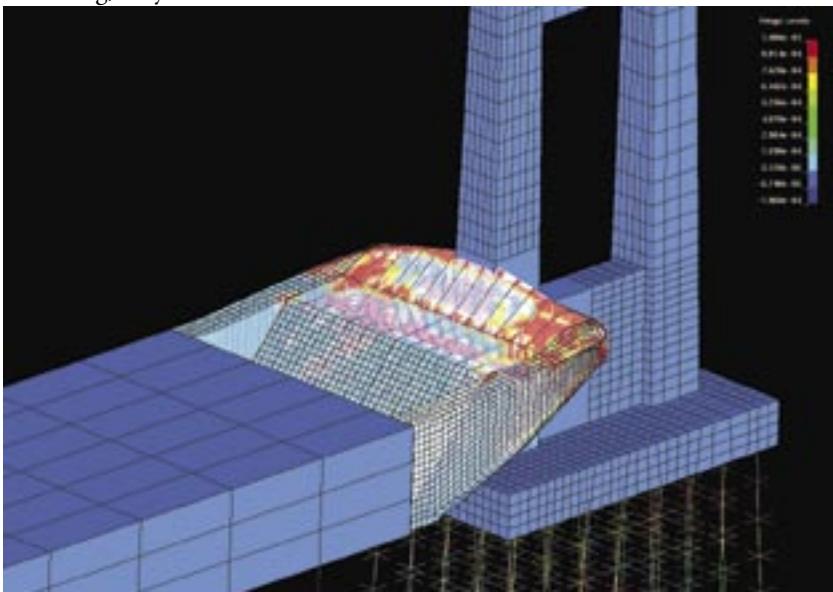
Phone numbers will remain the same.
Come visit our new offices!



Bridge Collisions

Dr. Gary Consolazio and a team of graduate students are actively involved in a combined analytical and experimental research program at the University of Florida aimed at improving the vessel impact resistance of bridge structures. Current national bridge design specifications provide engineers with procedures for computing static design loads that are intended to represent the impact forces generated during accidental vessel collisions. Events such as the collapse of the Sunshine Skyway Bridge in Tampa, Florida in 1980 (a ship collision event) and the collapse of bridges in both Texas and Oklahoma in 2001 and 2002 (barge collision events) demonstrate the potential for catastrophic failure when vessels collide with bridge piers. The UF team—consisting of Drs. Gary Consolazio, Ronald Cook, and Michael McVay and graduate students Ben Lehr, David Cowan, Alex Biggs, and Bibo Zhang—is focusing on developing a better understanding of the dynamic loads imparted to bridge piers during barge collisions. The team is using both state-of-the-art numerical modeling techniques and full-scale physical crash testing to accomplish their goals. Under Florida DOT funding, they have been conducting nonlinear, dynamic finite element computer simulations of numerous barge impact scenarios to gain insight into the dynamic interactions and forces that arise between barges and piers during impacts. These

supercomputer-based simulations are used to predict forces and structural responses during the collision event. Simulation results are not only being used to study collisions numerically, but are also being used to set the parameters of full-scale experimental barge impact tests that the team will conduct in 2003. A new bridge is presently being constructed between Eastpoint, Florida and St. George Island to replace the existing bridge structure. Once the replacement bridge has been opened to traffic, the UF team will conduct full-scale impact tests on piers of the old bridge prior to its demolition. A full size hopper barge (195 feet in length) will be used to strike selected piers at various impact speeds. In each case, an array of instrumentation will be used to measure dynamic forces and barge, pier, and soil response parameters. Combining the physical crash test data with computer simulation results, the UF team will then develop improved methodologies for computing design loads corresponding to barge impacts. Such methodologies not only have the potential to produce safer bridge designs, but may also lead to more economical designs as well.





**Dr.
Reynaldo
Roque
Selected as
Byron D.
Spangler
Professor**

The Byron D. Spangler Professorship was established on behalf of the many friends, former students and colleagues who wanted to honor the memory of this legendary University of Florida Civil Engineering Professor. Civil Engineering is a people-serving profession, and throughout the profession, Professor Spangler was known as "Mr. Civil Engineer" because he was the embodiment of the very essence of what our profession is about. His service to people, both within and outside of our profession, was exemplary and his legacy lives on by way of this Professorship, as well as in the thoughts and prayers of the countless numbers of us whose lives were positively affected by him.

Dr. Frank Townsend, Professor of Civil Engineering, was the first holder of the Byron D. Spangler Chair from July 1999 through June 2002. As those of you who know him are well aware, Professor Townsend is an eminent professor and civil engineer. The second faculty member to be distinguished with the Spangler Professorship is Dr. Reynaldo Roque. Dr. Roque is Professor and Associate Chair for Research in the Department of Civil and Coastal Engineering (CCE). He is a three-time graduate of the University of Florida, obtaining his BS and ME degrees in 1978 and 1979, respectively then after spending time in industry, he returned for his Ph.D., which he received in 1986. After completing post-doctoral work in Norway, he accepted his first full-time faculty position at Penn State University where he served until July 1994. At that time, he returned to his alma mater, this time as a member of the faculty in civil engineering, where he has served for the past eight years. His primary areas of focus in both teaching and research are infrastructure materials and pavements.

Dr. Roque intends to use the discretionary funds associated with the Professorship to promote enhanced interaction between our students and the professional community by supporting their participation in major professional conferences and meetings. The funds will also be used to host a banquet for CCE faculty and staff in honor of Professor Spangler.

The New and Improved Civil Engineering BSCE Curriculum

The department is changing its Civil Engineering curriculum to increase flexibility for undergraduate students so they may specialize in a specific area of their choice. This change was in response to student complaints and the results of a comparative study of curricula at nationally top-ranked Civil Engineering departments.

Students had often complained of uneven exposure to the various areas of Civil Engineering, with too much emphasis in some areas and not enough in others. Also, in comparison to other top-ranked CE departments, it was found that our CE curriculum was the most rigid since it only allowed two elective courses.

The current curriculum consists of 131 credits made up of 51 credits of math, science and general education courses; 11 credits of engineering fundamentals (statics, dynamics, thermo, and strength); 63 credits of required Civil Engineering courses; and 6 credits of electives.

The primary change in the new curriculum is a reduction in the number of required Civil Engineering credits from 63 to 54. This allows an increase in elective credits, from 6 to 15, while maintaining the overall degree requirements at 131 credits.

In making this reduction, the curriculum committee believes it has maintained the body of core material necessary for all Civil Engineering graduates. The final program was based on the experiences of the committee members and on a study of material covered in the Civil Engineering Fundamentals examination, which was presumed to be the material deemed essential by the profession.

The curriculum committee felt that specific "track" or "emphasis" areas should be developed giving students with an interest in a particular area of Civil Engineering an opportunity to study that specialty in greater depth, while avoiding the situation of students picking random, unrelated courses. For those students with no particular area of

interest, a broad track, essentially equivalent to the current curriculum, would be available.

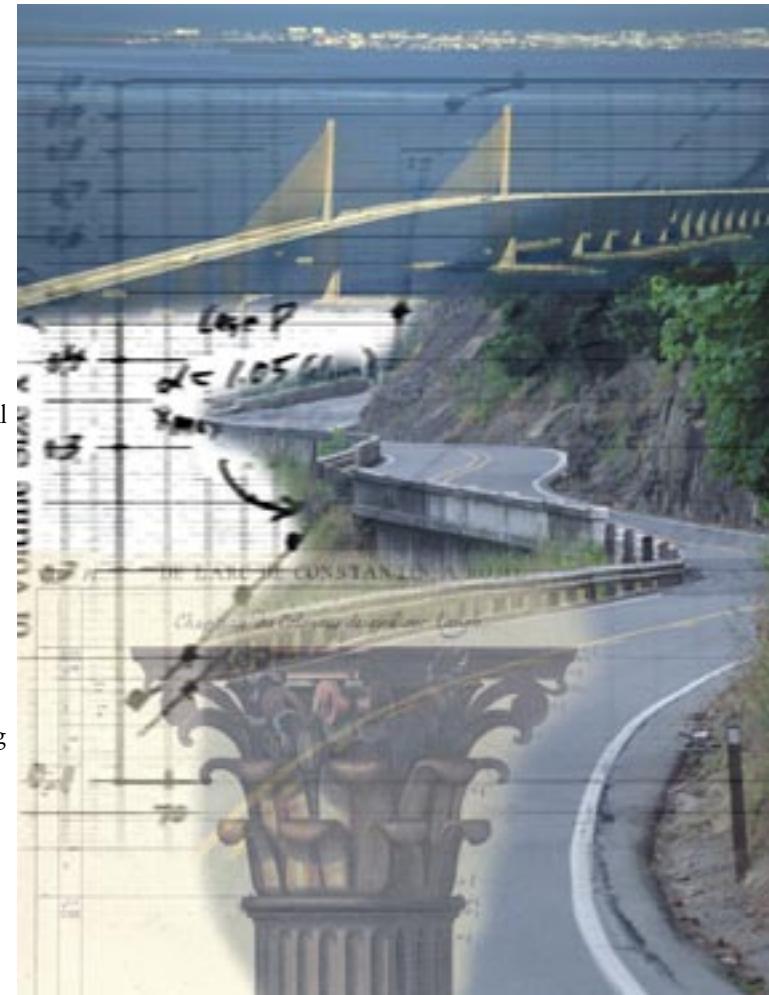
Six tracks have been proposed: Construction, Geotech, Hydrology/Water Resources, Structures, Transportation and the broad CE track. More tracks may be added later, perhaps in Geomatics, Geo-sensing, Materials and Coastal Engineering.

The new curriculum officially comes into effect with the 2003-2004 University of Florida Under-graduate Catalog—i.e., starting Fall Semester 2003.

If a student is graduating Fall 2002, Spring 2003 or Summer 2003, he/she will essentially be unaffected.

A student entering the CE Department as a freshman or transfer in Fall 2003 will automatically be on the new curriculum. Everyone else will have the option of either remaining on the old curriculum or switching to the new.

The new curriculum change received overwhelming approval by the department faculty, and by students at a recent Student Chapter meeting of ASCE. The department looks forward to producing diverse undergraduate professionals equipped with a more focused and rich educational experience.



UF ASCE Student Chapter

Brad Choi

The ASCE Student Chapter has been very busy in 2002. In April, we competed in the Southeast Regional Student Conference against 24 other universities in 12 competitions. We placed in the top five in 10 of the events including first place in both the concrete canoe and steel bridge competition. This achievement not only gave us our seventh overall Southeast championship in the past nine years, but also qualified both the concrete canoe and steel bridge teams to the national competition in Wisconsin this June.

Over 1200 students from 112 universities attended the National Student Conference in Madison, Wisconsin this summer. The UF chapter brought 54 registered participants, the largest contingent among all the schools, and our chants were heard throughout the four-day event. We competed well overall. The concrete canoe team placed 6th out of 25 schools, the highest in team history. The steel bridge team suffered a heavy penalty due to a 0.05-in. undersized member and dropped from a potential 2nd place to 13th out of 44 teams. Needless to say, we will be careful not to commit the same mistakes again.

As always, the ASCE Student Chapter



is not just about competitions. This past spring, we hosted 12 visiting German CE students from Berlin for two weeks, participated in the Annual Engineering and Science Fair and the BEC Soapbox Derby. And for the fifth consecutive year, we won the BEC's Most Active Engineering Society trophy.

We are looking forward to another exciting and successful semester. If you are not a member yet, make sure to stop by Weil 203C or visit us at www.ce.ufl.edu/~asce.

Scholarship Awards

Through the dedicated support of donors, the CCE department was able to award \$22,000 in scholarships to CCE students in 2001-2002. These scholarships include:

Dallas Montgomery Memorial Scholarship
Florida Association of County Engineers and Road Superintendents Scholarship
Florida Road Builders Association Scholarship
Florida Rock Industries Scholarship
Florida Section Institute of Traffic Engineers Scholarship
Joel Tyner Memorial Scholarship
Kevin Frank Memorial Scholarship
Kimley-Horn Scholarship
England-Thims & Miller Scholarship
Reynolds, Smith & Hills Scholarship
Claude D. Tankersley Scholarship
URS Corporation Scholarship
Vogel Foundation, Inc. Scholarship
Civil Engineering Department Fund Scholarship
A.F. Marshall Memorial Scholarship
William E. Poole Scholarship
H.H. Edwards
Jones Edmunds Scholarship

CCE Needs Your Support

In this time of receding support from the State Government, we need the help of our loyal alumni and friends. Any donations you can make to the Department will help to sustain the vitality and quality of our education programs. Thank you in advance, Joseph Tedesco!

Yes, I want to donate to the University of Florida Department of Civil & Coastal Engineering. My donation is:

\$50 \$100 \$250 \$500 \$1000 Other _____

Make checks payable to Department of Civil & Coastal Engineering.

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FLORIDA

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