UH CIVIL ENGINEERING
STUDENT SUCCESS

• DEPARTMENT ADDS TWO NAE MEMBERS, SEVEN NEW FACULTY
• ALUMNUS NAMED ENGINEER OF THE YEAR
• LASER MAPPING CENTER COMES TO UH
Dear CEE Alumni and Friends,

Welcome to our Blueprint newsletter. Great things are happening at UH, and I would like to share some developments in the Civil and Environmental Engineering (CEE) department.

In January 2011, the Carnegie Foundation for the Advancement of Teaching recognized UH as a Tier One University having “very high research activity.” Most recently, the Princeton Review chose UH as one of America’s Best Colleges. In fall 2010, the National Research Council ranked CEE in the top 50 percent out of 130 Ph.D. programs. Additionally, the department placed in the top 30 percent of the country in the NRC’s research activity measure. This is the result of the hard work of our faculty, students, staff and alumni.

Despite the challenges around the country, CEE is expanding. In the last year, we added seven faculty and expect four more in Fall 2011. This almost doubled the size of the department within two years. We are happy to welcome our newest faculty: Drs. Davood, Glennie, Herman, Rodrigues, Shrestha, Velenos and William. Simultaneously, we said good-bye to Dr. Dennis Clifford who retired in Fall 2010.

As part of our growth strategy, we continue improving our programs by raising standards. Our faculty have been developing a set of goals and action plans for the next five to ten years to build stronger undergraduate and graduate programs, increase research productivity, and lead interdisciplinary research in natural hazard mitigation and sustainable functioning of engineered and natural systems, infrastructure preservation, climate change, environmental quality, energy, and natural resources protection. In response to these challenges, we are expanding our horizons and have added talented faculty in computational mechanics, material science/engineering, geosensing, and microbiology and molecular genetics.

In this issue, we invite you to read about our research, new faculty and the expertise they bring with them, the success of our students, and last but not least, the headlines our accomplished alumni are making. In fact, the CEE department established an “academy” to recognize these prominent alums, the details of which are included in this newsletter.

I appreciate the opportunity to serve as chair of this fine department. We are always happy to hear and share updates from you and appreciate your support.
Last year, the National Science Foundation-funded National Center for Airborne Laser Mapping (NCALM) moved to the University of Houston. The center’s director, Ramesh Shrestha, a Hugh Roy and Lillie Crum Distinguished Professor of Civil and Environmental Engineering, brought NCALM to UH from the University of Florida.

Focused on airborne laser swath mapping and ground-based scanning laser technology research, the center has helped arm earth scientists across the country with detailed information on everything from beach erosion and landslides to drainage patterns and faults.

NCALM researchers are exploring the possibility of using Light Detection and Ranging (LiDAR) to map everything from glacial movements to the migration of penguin colonies in Antarctica.

Using the technology, researchers take measurements of the ground’s surface from their Cessna 337 Skymaster airplane. From roughly 2,000 feet, this remote technology measures properties of scattered light through the use of laser pulses. Thousands of small cone-shaped pulses travel through a hole in the bottom of the plane to the ground below. A unique detector picks up rays reflected from the ground. Then, each point’s distance is determined by measuring the time delay between the transmission of a pulse and the detection of reflected signals.

In coming years, the UH group plans to develop a next generation LiDAR system. The unit, less expensive than commercially available equipment and a hole in the bottom of the plane to the ground below. A unique detector picks up rays reflected from the ground. Then, each point’s distance is determined by measuring the time delay between the transmission of a pulse and the detection of reflected signals.

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On December 4, 2010, the Department of Civil and Environmental Engineering honored a very special faculty member: Dr. Dennis Clifford. He obtained a master’s degree in environmental engineering and chemical engineering and a Ph.D. in environmental engineering from the University of Michigan. He then began teaching at the University of Houston in 1976.

While a faculty member at UH, Dr. Clifford held the Thomas and Laura Hiss Professorship in Engineering. He is an internationally known scholar in water treatment and ion exchange, an exemplary teacher, and an unselfish contributor to the department, college, university and his profession. Dr. Clifford was twice named as one of the college’s outstanding teachers, and in 2005, he received the Cullen College of Engineering Career Teaching Award for “excellence in teaching and service to the students of the college.” He has graduated 18 Ph.D.s and 27 master’s students.

During his tenure at UH, Dr. Clifford obtained over $3 million (his share) of outside funding. He has more than 150 publications including 53 refereed journal papers, 23 peer-reviewed reports, 60 conference proceedings, nine book chapters and nine invited papers. He is a co-inventor on five patents related to water analysis and treatment. He has won numerous research and publication awards including the Sigma Xi Research Award, the Halliburton Senior Research Award, the Floor Daniel Faculty Excellence Award and the Abraham E. Dukler Distinguished Faculty Award from the UH Engineering Alumni Association.

Dr. Clifford’s service to the university has been exemplary. He directed the Environmental Engineering Graduate Program for 14 years and the Environmental Engineering Lab for 16 years. In addition to serving as chair of the department, Dr. Clifford has been a member or chair of numerous department, college, university and professional committees.

Due to his dedication, Dr. Clifford has earned emeritus status at the university. The emeritus title is conferred only upon retired tenured faculty who have made a significant contribution to the university through a long and distinguished record of scholarship, teaching and/or service. In addition, an endowed scholarship has been created in the department in his honor.

Department Adds Two NAE Members

Two new faculty members who belong to the National Academy of Engineering have joined the department.

Kapar William (left), professor of civil and environmental engineering, joined CEE last fall from the University of Colorado, Boulder. Inducted into the NAE in 2004, he has authored more than 160 publications and served as an invited speaker on more than 140 occasions. William, who earned his Ph.D. from the University of California, Berkeley, is also a fellow of the American Society of Civil Engineers, the American Society of Mechanical Engineers and the United States Association for Computational Mechanics. He is recognized as a leading authority on structural mechanics and materials, and a recipient of the Nathan M. Newmark Medal of ASCE.

Anous “Andy” Vetelos (right) joined CEE as an adjunct professor of civil and environmental engineering. He is also the Brown & Root Emeritus Professor in the Department of Civil Engineering at Rice University. Vetelos is a two-time winner of the Norman Medal, the highest award given by the American Society of Civil Engineers for papers published in its journals. He headed the group that formulated the Applied Technology Councils first design provisions for soil structure and then incorporated those provisions into the federal government’s National Earthquake Hazards Reduction Program. Vetelos’ areas of expertise include structural and foundation dynamics, earthquake engineering and the dynamics of offshore platforms.

William Rixey received a $75,000 grant from the American Petroleum Institute to explore the impacts of various ethanol fuel blends on a pilot-scale aquifer. He also won a $23,000 grant to explore subsurface multiple flow behavior of diesel fuels and groundwater quality from the Texas Hazardous Waste Research Center.

Jerry Rogers will receive a Lifetime Achievement Award from the Environmen- tal and Water Resources Institute in May. He also will receive the American Society of Civil Engineers’ 2011 Civil Engineering History and Heritage Award this October. His paper titled “The New Town of Boulder City: City Planning and Infrastructure Engineering for Hoover Dam Workers” was one of 20 papers selected nationally for in- clusion in the proceedings of a special sym- poium to celebrate the 75th anniversary of the Hoover Dam at the American Society of Civil Engineers annual conference.

Kyle Strom won an Outstanding Teach- ing Award from the UH Cullen College of Engineering.

Cumaraswamy “Vipu” Vipulanandan won the 2011 Most Valuable Professional award from the underground Construction Technology Association and Underground Construction magazine for his outstanding contributions in education and research related to underground infrastructure construction and maintenance.
The Structural Engineering Institute of the American Society of Civil Engineers (ASCE) Texas/Mexico Regional Concrete Canoe Competition, earning a spot to compete at the national level each year.

In 2010, students competed against 13 teams at the national level each year.

In total, the students’ estimate more than 1,100 hours was spent on the project. Many afternoons and weekends were spent on surrounding lakes and bayous bringing their paddling skills up to speed for two female, two male and one co-ed race in the boat. At regions, they breezed by their competitors—taking first in three of the races and second in the others.

For two out of the last three years, the UH Concrete Canoe Team has captured first place at the American Society of Civil Engineers (ASCE) Texas/Mexico Regional Concrete Canoe Competition, earning a spot to compete at the national level each year.

In 2010, students competed against 13 teams at Town Lake in Austin for the title. High rankings in each of the four portions of the competition—an oral presentation, design paper, physical display and five canoe races—earned them top honors in the competition. But it was their concrete mixture—poured to make the 215-pound canoe dubbed Steer Clear—that challenged their engineering minds and made the win attainable.

Their final recipe was applied to a wood-styrofoam hull, which they let cure for 28 days.

“It feels so great to win,” said Jessica Baptista, the team’s captain. “We worked so hard and lost a lot of sleep to make this possible. We literally poured our heart and souls into this and it paid off.”

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Wayne Klots (MSCE ’76) received the honor in recognition for his work with Klots Associates, the civil engineering firm he co-founded, and for his service to the profession as national president of the American Society of Civil Engineers.

Klots served as head of ASCE from November 2008 to November 2009. During that period, congress and President Barack Obama debated and crafted the American Recovery and Reinvestment Act, better known as the stimulus package.

During this same time, the ASCE was preparing to report card on the state of the nation’s infrastructure. Recognizing an ideal chance to advocate for a much-needed infrastructure investment, Klots moved up the release of the report card to coincide with the stimulus debate. He soon was giving interviews to media outlets across the country, becoming the de facto spokesman for strengthening the nation’s infrastructure.

While the stimulus bill ended up dedicating less than 10% of its dollars to infrastructure, Klots said, “the fact remains that it was a huge boost to public awareness that the basic infrastructure – water, wastewater drainage, paving, the building blocks of our modern society – need to be taken care of and improved.”

In addition to advocating for infrastructure spending, as ASCE president Klots also worked to raise awareness of the need for sustainability in civil engineering projects. Sustainability in these efforts means accounting for three main factors in a project: its economic viability, environmental impact, and effect on the people who live and work near it.

Klots’ focus on sustainability led to the recent creation of the Institute for Sustainable Infrastructure, a partnership among the ASCE, the American Council of Engineering Companies and the American Public Works Association. Klots is currently serving on the board of directors for this new group.

One of theESIS first projects is the creation of a rating tool, similar to the United States Green Building Council’s LEED program, to quantify the sustainability of civil engineering undertakings. The IS and its rating system, Klots said, “will oversee the sustainability effort for really the whole profession.”

While his efforts on behalf of his civil engineering profession are impressive, Klots has also reached great heights with the firm he co-founded in 1985. Klots Associates works on all elements of public infrastructure, as well as on some commercial and industrial projects.

The Academy of Distinguished Civil & Environmental Engineers

The Department of Civil and Environmental Engineering recognized the need to honor their prominent alumni by creating The Academy of Distinguished Civil & Environmental Engineers. In 2010, the department, in concert with the Industrial Advisory Board, began designing an appropriate and fair method of selecting candidates and forming a self-sustaining group that will continue the legacy.

The academy is dedicated to recognizing outstanding alumni who bring honor to the CEE department and have sustained distinction and distinction contributions to the profession, field, the university, or society at large. Academy members represent an elite group of alumni who have achieved greatness all starting with the same set of tools obtained here in the Civil and Environmental Engineering department in the UH Cullen College of Engineering.

When selecting candidates, the academy seeks out alumni who received their degree in civil or environmental engineering from the University of Houston at least twenty years prior to nomination. During those twenty-plus years, each candidate must have become an outstanding engineer practitioner and/or possess recognized expertise in one or more fields of civil or environmental engineering.

While promoting civil and environmental engineering, the academy also recognizes its alumni who have become an outstanding and recognized leader and achieved distinction in a field other than civil or environmental engineering. Academy members are outstanding and recognized academics, scientists, or researchers in civil or environmental engineering or another field.

Academy candidates are leaders in their communities or business and have achieved outstanding success. They are active in professional or career organizations, recipients of honors in their profession, active in the community. Many are known by their involvement in public service, service organizations, and/or charitable causes, or are lecturers or writers on subjects related to their chosen field.

The academy is evidence of the success available to current students. By recognizing these well-decorated alumni, the Civil and Environmental Engineering department will help the university achieve national prominence in civil or environmental engineering education and strengthen students’ understanding of the engineering profession through the personal and professional example of their predecessors. The academy will be a distinguished group of alumni to provide expert advisory guidance and counsel to the department, faculty, and students and advance the objectives of the development program.

2011 Inductees

Charles Beyer (BSCGE ’72, MCE ’77)
President, Beyer Construction, LLP

The Honorable Bill Colelegari (MSCGE ’72)
House Representative, District 132

David A. Eastwood, P.E., C.A.P.M. (BSCGE ’77, MCE ’78)
President of Geotech Engineering and Testing

Wendell Fendley, P.E. (BSCGE ’71)
Board member, Cobb, Fendley, & Associates, Inc.

Jesse Gonzalez, P.E. (BSCGE ’69)
Co-Owner, The Gonzalez Group

David M. Barton
Director, Engineering Services

Sharon Giordano
Director, Environmental Services

Dr. Mouhamad Y. Mansour
Chief Operations Officer

Steven Simmons, P.E. (BSCGE ’81)
Vice President of Lockwood, Andrews & Newnam

Rafael Ortega, Ph.D., P.E. (MSEnvE ’82, PhD EnvE ’84)
P.C. Rossin Professor, Lehigh University

Anup SenGupta, Ph.D., P.E. (MSEnvE ’82, PhD EnvE ’84)

Steve Lindgren, P.E., C.E.C.
Director of Environmental Services

Arup SenGupta, Ph.D., P.E.

Jesse Gonzalez, P.E.

Rafael Ortega

Steven Simmons, P.E.

Anup SenGupta, Ph.D., P.E.

Jesse Gonzalez, P.E.

Rafael Ortega

Steven Simmons, P.E.

Arup SenGupta, Ph.D., P.E.

Jesse Gonzalez, P.E.
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Gifts to UH Department of Civil and Environmental Engineering help fund much-needed scholarships for our students, help us renovate our labs and facilities to be competitive with other Tier-One programs, and help us support the activities of our student organizations. Thank you for continually helping us meet these needs!

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