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We’re Still Teaching the Basics

We were delighted to hear back from many of our alumni following the Fall 2009 newsletter. Many patted our backs for the continuing efforts of enhancing civil and environmental engineering curricula, but some also expressed worries that we might be moving away from teaching the fundamentals and the core of civil and environmental engineering. I would like to assure you that we are staying very true to our engineering education mission while making necessary curricular adjustments that help prepare our graduates for the challenges of the 21st century. Our recently implemented reform also helps us meet ABET accreditation requirements.

This fall I will be starting my twentieth year at UVM within the civil and environmental engineering program. I have seen many changes over the years in terms of the makeup of the faculty, the rising and falling cycle of student numbers, the turnover in deans and other administrators, the dissolution of the departments and emergence as a unified School of Engineering, new courses, new teaching techniques and an emphasis on emerging topics for the 21st century. All of these have made my UVM faculty experience both exciting and challenging. What has not changed, however, is our emphasis on the engineering fundamentals within the civil and environmental programs, whether it’s the basics of surveying, fluid mechanics, design, ethics or communication skills. Our educational mission has been, and still is, to provide our students with a solid engineering degree grounded in science, technology and the humanities that will allow our graduates to pursue engineering careers in a changing workplace, engage in engineering and scientific research or pursue other careers that build on their educational experience. We believe hands-on experiences enhance the fundamentals, and therefore, we continue to offer laboratory courses throughout the four-year program (e.g. surveying, AutoCAD, materials testing, hydraulics, environmental and geotechnical laboratories). We are also including service-learning projects that involve working with local community partners on real engineering projects. Our program has a long history in this kind of real-world learning, we just didn’t call it service-learning back then.

Given our high student numbers of the last few years, and turnover in faculty, we have relied on many local professional engineers to help teach some of the courses. We sincerely value this service as it has provided a wonderful experience for our students in terms of enhancing their professionalism and awareness of what it means to be an engineer. Engineering, especially civil engineering, has a long-standing history at UVM, and has provided valuable engineers for the State, and the country, for over 150 years. We are proud to successfully carry on this tradition.

— Nancy J. Hayden, P.E., Ph.D., Program Head
Dr. Eric Hernandez will join the faculty of Civil & Environmental Engineering in the UVM School of Engineering as an Assistant Professor in the spring semester of 2011. His research interests are in structural monitoring and failure risk assessment of civil infrastructure systems, dynamic effects on structures, with special emphasis on earthquake effects and inverse problems in structural dynamics and wave propagation. “I am very excited to join the faculty at the CEMS and I believe that my combination of professional, teaching and research experience in the field of structural engineering will be a great foundation for the research that I’ll carry out at UVM.”

Dr. Hernandez was born in Santo Domingo, Dominican Republic and conducted his undergraduate studies in civil engineering at Universidad Nacional Pedro Henriquez Ureña. In 2002, he received a Fulbright scholarship to pursue graduate studies in structural engineering and in 2007 he completed his Ph.D. under Dr. Dennis Bernal at Northeastern University in Boston. During his time at Northeastern he was a teaching assistant for Statics, Strength of Materials, Structural Analysis and Reinforced Concrete Design. In 2005 he was awarded an Outstanding Teaching Award by the College of Engineering.

Upon graduation, he worked in the Engineering Mechanics and Infrastructure Division of the consulting firm Simpson Gumpertz and Heger (SGH) in Boston. At SGH he performed seismic analysis and design of nuclear facilities and failure risk assessment of large water pipe systems. In 2008 he returned to the Dominican Republic to fulfill the two-year Fulbright service commitment. In the Dominican Republic he worked as Research Professor at the Instituto Tecnologico de Santo Domingo (INTEC). At INTEC his research focused on the problem of seismic safety evaluation of existing building structures, especially after the earthquake in Haiti.

Eric enjoys the outdoors, playing guitar, chess and of course, being a Dominican, he loves baseball. He is married to Karin and they have a son, Eric Jr.
2010 Senior Design CAPSTONE Course

The accreditation board requires that all CEE graduates have a multi-disciplinary, capstone design experience. Our students work on their capstone projects typically in their final semester. It is an intense 15-week long experience.

For the past four years, all of these have been service-learning projects where students work with local communities, towns and non-profits on their Civil and Environmental Engineering [CEE]‐related needs. Each project encompasses at least two sub-disciplines of CEE. For most projects, students collect the required data, analyze them and then design with cost estimates. We do our best to select projects that offer a solid CEE design experience and at the same time promote sustainability.

This year Dr. Dewoolkar formed eight student teams and they worked with six different community partners: Town of Barnet (Modifications to Harvey’s Lake Dam); Town of Richmond (Stormwater Improvements for the Richmond Town Hall and Richmond Rescue Sites); Town of Essex (Essex Way Stormwater Analysis and Design); Gardenside Community in Shelburne (Gardenside Erosion Remediation); City of Burlington (Low Impact Stormwater Management of Decatur Street); and UVM’s Physical Plant (Snow Removal System Design for Gutterson Parking Structure, Trinity Campus Waterline Service Improvement, and Historic Wheeler Carriage Barn Restoration Design).

Professor Emeritus Richard Downer acted as a technical resource for the students in class and then via email while working for FEMA. For each project, students considered multiple design alternatives and suggested recommendations based on costs and social and environmental impacts. They wrote comprehensive technical reports, which were provided to the community partners. Their final presentations were about an hour long, including about 20 minutes of questions and answers. Professor Emeritus James Olson and John Forcier (UVM 1972), as well as other faculty and graduate students, spent the whole day examining the students. Representatives of the community partners also attended.

In addition to the final presentations six of the eight groups also had the opportunity to present their projects at an ASCE meeting in Norwich, VT; at their community partner’s Selectboard meetings; or at the Davis Center (the new UVM student center) during the School of Engineering Design Night.

This year, the students prepared short photo/video stories of their projects. We welcome you to check those out at: http://www.uvm.edu/~sysedcee/?Page=capstone/default.php

If you have ideas for capstone design projects, please contact Dr. Mandar Dewoolkar (mandar@cems.uvm.edu) or Dr. Nancy Hayden (nhayden@cems.uvm.edu).
Dr. James Olson: On the Course and Off

At the time I retired from active teaching at UVM, I knew that I still wanted to be involved with engineering. My long term association with Civil Engineering Associates (now in South Burlington) provided that opportunity. The company, which is owned by three former students (classes of 1980 and 1984), allows me to work part-time, name my own hours, and select my own projects (pretty good deal, huh?). This arrangement allows me the flexibility to play plenty of golf in season and to travel to visit with my children and grandchildren.

Typical projects for me include geotechnical investigations and design as well as small structural design projects for building modifications. On the geotechnical side, I have had the opportunity to design two significant soil nail walls for temporary support of excavations. One was for an expansion at Fletcher Allen Health Center and the other was for a new hotel in Colchester. Several structural projects involve renovations to buildings in the Burlington School System.

My wife and I make an annual sojourn to Hilton Head Island each spring for two to three weeks to get away from the end of winter and for me to get my early spring golf fix before the local courses open for the year. My golf game seems to have reached a plateau (something to do with age I think) but I can’t imagine a more enjoyable way of relaxing, getting exercise, and spending time with friends and family.

What I miss most since retiring from UVM is the daily interaction with students and observing their progress over four years of study, only to be replaced by a new set of faces every fall. Being with young people all the time tends to keep you young, so I never had the sense I was getting older in that environment. A blessing!

He Never Stops . . .

Dr. Richard Downer said getting him to write about himself is like pulling teeth (his).

● In January my cousin and I drove two horses non-stop from Massachusetts to Florida.
● I started assisting with the Senior Design course three days per week, giving lectures on Designing with Geosynthetics and How to Find a Job, acting as an engineering consultant to the students.
● I went to a couple of local dances with my wife. We’ve been dancing together for 55 years—since high school.
● Emeritus Professor Dave Hemenway and I typically swim for an hour three days per week.
● I am a founder and President of the Saint Andrew’s Society of Vermont Scholarship Foundation, Inc.
● I usually attend the monthly meetings of the Vermont Section of ASCE. I am a member of Freemasons lodges in both Williston and Stanbridge East, Quebec and usually attend both monthly meetings.
● On March 15 I deployed with FEMA to Lincoln, Nebraska for eight weeks, to act as a mitigation engineering advisor and to give a series of presentations on the “Use of Geosynthetics in the Repair of Gravel Roads.” I gave 17 three-hour presentations to 383 people in four states. I also wrote a “Handbook on How to Use the new FEMA 4.5.5 BCA Module,” a new required program to compute benefit-cost ratios. I drove about 5,000 miles in the eight weeks, either to the presentation sites or to damaged sites where I offered engineering suggestion for repairs.
● Since returning I have had numerous appointments – hair cut, annual doctor’s checkup, dermatologist, dentist, oil changes for three vehicles.
● In May I mowed two lawns, opened camp, put in the dock and boat, entertained relatives for a week, attended two graduation ceremonies out of state. Then for fun I installed a front strut on my Subaru.
● Last week I installed a 48-inch square skylight at my camp. During the next two weeks I am installing a shower and a toilet.

So you see every day begins about 6:30 a.m. and I wind down after the 11:00 pm weather report (no mid-day naps allowed). Every day ends with a long list of things to do tomorrow.

I am busy and healthy. Therefore, I am happy. I do not “recreate” (play tennis, golf, hike, etc.), rather I work on my camp as a form of relaxation (a project I will never finish).
UVM Chapter of ASCE & the 2010 Steel Bridge Competition

The UVM Steel Bridge Team competed in the Regional Competition at Tufts University on April 10th, 2010. We placed 5th overall in the Region. This has been a successful improvement for the Bridge Team over the past few years, and hopefully, will start a new era for UVM maintaining a competitive nature in competitions to come.

Other than the bridge, we worked on some fundraising ideas. We designed team tee-shirts and tee-shirts to sell to other Engineering and University of Vermont students. This will enable the students to have an item to help remember the time they spent in the Engineering building—Votey Hall—at UVM. Several members also attended the ASCE student ski day at Sugarbush in January 2010. Students received a discount pass with meals included, then had the opportunity to network with local working engineers and watch a presentation on the recent developments at Sugarbush Ski Resort.

— Brendan Kerin (2010)

A note about the class of 1999’s Bridge Team:

In the fall of 1998, our UVM Steel Bridge Team took 1st place in the Regional competition, held at Northeastern University. That lead us to the National competition in Anchorage, AK. In the national competition, our bridge was disqualified after one of the welds snapped. One of our three-person design team took it upon himself to re-build our bridge, and try to lighten it further—but he missed going over one of the tack welds, which failed when the bridge was loaded.

Our bridge was a major shift in paradigm (possibly inspired by Prof. Nancy Hayden’s ‘Paradigm Paralysis’ lecture—does she still give that lecture?). Prior to our design, UVM’s bridges had traditionally been designed as truss bridges, constructed of heavy 2x2 angle iron, and large clunky ½” diameter bolts and nuts. We threw this failed concept out, and designed UVM’s first bridge using Open Web steel joists, and a pre-tensioning system below the deck. Instead of gusset plates, historically used, we used all slip connections, with ¼” bolts and wing nuts. We also painted our bridge a camouflage style—green and yellow. It was late, and we were exhausted. The judges HATED the paint job on our bridge, and gave us poor marks for aesthetics, but we still took first place due to performance. I believe we had the second smallest deflection, but our deflection to weight ratio was far better than the bridge with the least amount of deflection.

I’ve enclosed some pictures: The first two are at Northeastern University, and the last one is our bridge in Anchorage. — submitted by Eric Snyder (1999)
Alumni Up-Dates

Sven Scribner (2000)

I’m married with two sons, a 3-year-old and another born July 8th. We live in Middlesex, VT and I have worked for the Vermont Agency of Transportation since graduating. I have my P.E. license and seven bridges that I have designed have been built. I am currently working on a 250 foot truss in the town of Bethel.

I have had a lot of opportunities since working here and thoroughly enjoy it. It’s tough to name all the things I’ve done in the past nine years but that seems to be the summary.

I don’t know if it is possible or not but I know Martin Courcelle is big into running and I seem to always see him wearing a purple spandex running outfit, he may not admit it but I’m pretty sure he’d like you to include that photo, I’m guessing our classmates would get a kick out of it.

Marty Courcelle (2000)

I have continued to work at Champlain Consulting Engineers in Colchester, VT (where I interned during school). I received my PE in 2006 and am now a partner at the company. The work is pretty diverse. I have worked on projects ranging from single family residential wastewater disposal systems (I actually did Sven Scribner’s system) to 50-lot subdivisions and commercial developments over 100,000 sq. ft. of retail space. I am involved with all aspects of potable water, wastewater disposal, stormwater treatment design and permitting.

On the personal side of things I married Kristen Carlson (UVM alum) in July 2004. We have a house in Colchester near my office. Now for a little clarification on Sven’s email and my purple spandex suit. My wife got involved with Team in Training [TNT] in 2005 after her stepfather was diagnosed with myeloma. TNT is a fund-raising arm of the Leukemia and Lymphoma Society which helps train participants for endurance events in exchange for raising money to support blood cancer research and patient support. After seeing my wife’s involvement with TNT I decided to join the cause and signed up to run the Vermont City Marathon. My wife and I both recently became the first Vermont participants to complete the triple crown of doing a marathon, century ride (100-mile bike ride) and a triathlon for TNT. I have now run nine marathons, completed one century ride and have done two triathlons.

Combined, Kristen and I have raised over $16,000 for the Leukemia and Lymphoma Society. That is where the purple comes in—TNT’s color is purple so Sven is right, there are pictures of me plastered all over the Internet in my purple gear. Attached is one for your enjoyment from the Mooseman Triathlon in Bristol, NH.

I can’t believe how long it has been since we were roaming the halls of Votey—it seems like yesterday!

Liza McNulty (2000)

I received my Master of Science degree at Berkeley and ended up staying here. I commute into San Francisco for work, but just love the space, yard, easy parking of the East Bay.

After receiving my degree I returned to the same job/company I had started with right after graduating from UVM. [Schaaf & Wheeler, a small consulting firm in the San Francisco area specializing in water resources engineering.] I bought a house, got married, and became an owner of my company. I'm expecting our first child in mid-September—it's very exciting and also terrifying!
Louis Hodgetts (2004)

Working at the Williston, VT office of DuBois & King, as part of the Site and Land Development Group, I have had the opportunity to work on a wide variety of site civil projects ranging from single family septic system designs to multi million dollar commercial and institutional facility site designs. Specific projects have included the Stowe Mountain Lodge at Spruce Peak, the Town of Georgia Fire Station, Norwich University Campus Center, Norwich University South Hall, and over 50 telecommunication facilities for Verizon Wireless. My primary focus has been on stormwater management, erosion prevention and sediment control, water supply, wastewater disposal, and roadway design on steep terrain, with an emphasis on sustainable design.

To balance my professional life I try to stay active and participate in team sports. Unfortunately finding programs has proven to be more challenging than it should.

I started Game On, LLC, (gameonvt.com) a year ago out of frustration with the current system for finding and registering for adult sports leagues in the Greater Burlington area. After a couple unsuccessful attempts I realized there must be a better way. To accomplish this we are working on a multi level approach to: (1) coordinate with the existing leagues and programs operating independently around the region and to create a hub where all sports programs can post information; (2) develop new leagues and programs to meet the interests of the community; and (3) to be an advocate for participation in team sports and the development or improvement of sports facilities in the area. In addition, Game On is able to provide multiple services to organizations around the area. As a dedicated sports management company we are able to develop, organize and manage any sports related program.

Connor Hayden (2009)

My experiences at UVM greatly contributed to my current interests in research. During my first two years at UVM I performed laboratory work studying the behavior of ants as part of the Math-Bio program. Taking classes and performing research with Professor Dewoolkar during my senior year as well as the preceding and subsequent summers inspired my interests in geotechnical engineering and research.

Following graduation I attended Berkeley for my Master’s degree in geotechnical engineering. Having just completed the one-year Master’s program, I can say it is incredible how much material is compressed into those nine extremely busy months. In the spring I was excited to learn that I had been awarded a National Science Foundation (NSF) Graduate Research Fellowship which generously covers tuition and provides a stipend for three years. This award allowed more flexibility in choosing a PhD topic and advisor as funding was no longer an issue. I am now working with Professor Jonathan Bray studying the effects of soil structure interaction on liquefaction. This study will incorporate case histories from the recent Chilean earthquake. So far this summer I have been reviewing literature relevant to my topic. I am looking forward to later stages of my research which will likely include at least one trip to Chile.

Other than work I am enjoying the sunny weather with no rain or heat waves or swarms of mosquitoes, and the abundance of nearby great restaurants.

In spring we sent an e-mail asking for news of possible entry-level positions for our graduating seniors. We heard from several of you, but the one shown below is from an alumni who graduated just one year earlier.

Jeremy Edinger (2009)

I can't believe it's come to the point where I'm being asked to provide undergrads with possible career opportunities, man how time flies! I was lucky to be hired right out of school by a great company, Hatch Mott MacDonald. As part of a global group, Hatch Mott has offices spanning the entire country, and Canada. Most recently we have been ranked #51 of ENR's top 500 engineering design firms . . . not too shabby. Even in these rough times, our company has continued to be profitable and is still growing, although slower than in the past but still on the up-swing.

The company is also great with providing internships for non-graduating students. I interned here in New Jersey the summer before my senior year and was asked to return as a full time engineer and couldn't be happier. It'd be great to see other UVMers throughout the company.

Remember your past and help our future engineers enter the professional world. If your company has entry-level positions available, or is in need of an intern, let us know! We still update our JOB BOARD and forward the info to our students.

Hire the Brightest & the Best

Hire UVM!