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# THE BRIDGE

*Newsletter for  
Students of  
Civil and Environmental  
Engineering  
UMASS - AMHERST  
November 2006*

## Civil Engineering Career Fair

The Civil and Environmental Engineering Department hosted its first Fall Civil Fair on October 25, 2006. The Civil Fair is a wonderful opportunity for firms and companies to seek qualified interns, co-ops and full-time employees and it is also an opportunity for you to connect with employers! More than 20 companies attended the Civil Fair which included:

- Beals and Thomas, Inc.
- Camp Dresser & McKee, Inc.
- Connecticut Dept. of Transportation
- CONTECH Stormwater Solutions
- ERM-Northeast Inc.
- GeoDesign, Inc.
- Hazen and Sawyer
- MS Transportation Systems, Inc.
- O'Reilly, Talbot & Okun Assoc.
- Rizzo Associates
- Simpson Gumpertz & Heger Inc.
- Stearns and Wheler
- SVE Associates
- Tata & Howard, Inc.
- Vollmer Associates
- WilsonMiller, Inc.
- Wright-Pierce



***The next Civil Fair is scheduled for February 22, 2007!***

## Quote

"The ideal engineer is a composite ... He is not a scientist, he is not a mathematician, he is not a sociologist or a writer; but he may use the knowledge and techniques of any or all of these disciplines in solving engineering problems."

*N. W. Dougherty, 1955*

## Save the Date

11/8: Pre-Registration Advising Night from 4-7 p.m. in the Gunness Student Center

11/11: Veterans Day

11/22: Thanksgiving recess begins after last class

11/27: Classes resume

12/13: Last day of classes

12/14: Reading Day

12/15: Final exams begin

12/16: Second reading day

1/28-2/3: Welcome back week

1/29: First day of classes

## Pre-Registration - CEE Majors

Pre-registration advising will be held on **Wednesday, November 8th from 4:00 PM to 7:00 PM in the Gunness Engineering Student Center.** CEE students whose last names begin with M to Z should come from 4 to 5 PM; those with last names from A to L should come from 5 to 6 PM. Pre-registration for students advised by Dr. Brena will take place on Friday, November 10th from 3:00-5:00 PM in Marston 233 and pre-registration for students advised by Drs. Reckhow and Tobiason will take place on Monday, November 13th from 11:30-1:30 in Marston 233. If you cannot make the November 10th or 13th date, please go to the November 8th pre-registration and another faculty member will see you. Students will be notified if one of these professors is their advisor.

For students who cannot make the November 8th meeting, back up sessions will be held on Friday, November 10th from 3:00-5:00 pm and Monday, November 13th from 11:30 am to 1:30 pm with Dr. Ergas in Marston 233 and 234. Any student needing special help can make an appointment to see Dr. Ergas or can stop by 18 Marston during her office hours (Monday and Wednesday: 11:15-1:00; Thursday: 9:00-10:00; and Friday: 11:15-12:15).

All students are encouraged to pick up their pre-registration packets from Jodi in Marston 226 beginning November 6. You must print out your Degree Progress on SPIRE and bring it with you to advising.

## Spring 2007 Electives

COURSE	TITLE	ENG. SCIENCE	ENG. DESIGN
<b><u>CIVIL</u></b>			
CE-ENGIN 275	Introduction to AutoCAD	0	0
CE-ENGIN 490A	Sustainable Aspects of CE	1	2
<b><u>ENVIRONMENTAL</u></b>			
CE-ENGIN 462	Water Res. Engineering & Sustain.	1	2
CE-ENGIN 561	Open Channel Flow	2	1
CE-ENGIN 577	Surface Water Quality Modeling	2	1
<b><u>GEOTECHNICAL</u></b>			
CE-ENGIN 423	Engineering Geology	3	0
CE-ENGIN 590Q	Earthquake Engineering	2	1
<b><u>STRUCTURES</u></b>			
CE-ENGIN 433	Concrete Design	0	3
CE-ENGIN 541	Structural Dynamics	2.5	0.5
CE-ENGIN 590B	Bridge Design	0.5	2.5
<b><u>TRANSPORTATION</u></b>			
CE-ENGIN 450	Highway Location & Design	1	2
CE-ENGIN 509	Transportation Systems Analysis	2	1
CE-ENGIN 516	Transportation Design	0.5	2.5

# Undergrad Student Handbooks

are available on line at  
[http://www.ecs.umass.edu/cee/cee\\_web/acad\\_undergrad.htm](http://www.ecs.umass.edu/cee/cee_web/acad_undergrad.htm)

## Civil and Environmental Engineering - Final Exam Schedule

Department	Course	Date	Time	Place
CE-ENGIN	121	W 12/20	10:30 AM	MRST0220
CE-ENGIN	240	Th 12/21	8:00 AM	GSMN0064
CE-ENGIN	241	F 12/15	4:00 PM	MRST0220
CE-ENGIN	260	Tu 12/19	4:00 PM	MRST0132
CE-ENGIN	270	F 12/15	10:30 AM	MRST0211
CE-ENGIN	310	W 12/20	4:00 PM	MRST0132
CE-ENGIN	320	W 12/20	4:00 PM	MRST0220
CE-ENGIN	331	F 12/15	4:00 PM	MRST0132
CE-ENGIN	357	Tu 12/19	8:00 AM	MRST0132
CE-ENGIN	370	Th 12/21	8:00 AM	MRST0132
CE-ENGIN	371	F 12/15	1:30 PM	MRST0220
CE-ENGIN	421	Tu 12/19	10:30 AM	MRST0211
CE-ENGIN	434	M 12/18	8:00 AM	MRST0211
CE-ENGIN	469	M 12/18	4:00 PM	MRST0220
CE-ENGIN	486	W 12/20	4:00 PM	MRST0211
CE-ENGIN	511	F 12/15	10:30 AM	MRST0220
CE-ENGIN	536	F 12/15	10:30 AM	MRST0015
CE-ENGIN	549	Tu 12/19	1:30 PM	MRST0220
CE-ENGIN	560	F 12/15	8:00 AM	MRST0220
CE-ENGIN	620	F 12/15	8:00 AM	MRST0015
CE-ENGIN	625	Tu 12/19	8:00 AM	MRST0211
CE-ENGIN	630	M 12/18	8:00 AM	MRST0015
CE-ENGIN	646	M 12/18	1:30 PM	MRST0015
CE-ENGIN	661	Tu 12/19	8:00 AM	MRST0015
CE-ENGIN	672	M 12/18	1:30 PM	MRST0220
CE-ENGIN	680	M 12/18	8:00 AM	MRST0220

Department	Course	Section	Date	Time	Place
ENGIN	111	A	Th 12/21	10:30 AM	ECSC0119
ENGIN	111	B	Th 12/21	10:30 AM	ECSC0119
ENGIN	111H	1	Th 12/21	10:30 AM	ECSC0119

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## February Tentative Graduation List

- Vladimir Caceres
- Kuok Chiang
- Alex Dobiecki
- Adam Gabrielson
- Daniel Huse
- Tameron Josbeck
- James Karalekas
- Raymond Lepage
- Lindsey Mantha
- Anna Mermelstein
- Arianna Mickee
- Christopher Sanford
- Jonathan Sieruta
- Matthew Skelly
- Dawid Szymczakiewicz
- Frederick Vanston
- Raymond Vasquez

If your name appears here and you are not planning to graduate after this semester or if you are planning to graduate after this semester and your name is not on this list please see Jodi Ozdarski in 226 Marston Hall as soon as possible. Each student must check with Dr. Lardner in 234A Marston Hall to be certified for graduation

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## CEE Research Project

### *The Business of Engineering*

*Submitted by Ryan LeBlanc*

As part of the Engineering Management Minor's Capstone Course, I am participating in a project that involves the commercialization of technology developed in the Environmental Engineering Department. Dr. Sarina Ergas and PhD candidate Ashish Sahu have developed a bioremediation process for treating perchlorate contaminated water. Perchlorate is a chemical that is highly soluble and is a by-product of rocket fuel in missiles and fireworks. Water contaminated with perchlorate poses numerous health risks, like blue baby syndrome and impairs normal thyroid function. The technology developed by Dr. Ergas and Ashish involves biologically degrading perchlorate into safe by-products using microorganisms in a membrane of sulfur pellets and oyster shells.

The most exciting part about this project is not really the research side, but the business side. I have had the chance to talk to numerous experts and companies that are currently involved with treating perchlorate. Talking with people already involved in the business side of environmental engineering gives another part of the engineering world that is not always seen in the classroom.

New technology has numerous hurdles to overcome to get from the lab to the market. First there has to be a market that will buy your product and then a way to get your product to the customer. Lastly the engineering aspect of the project, this new technology needs to be scaled up from the bench scale model to a full functioning field model. This depends on who will use the technology and how they want to use it. Most of my current work has been to find the market for this new technology and then help to develop a plan. In summary, being able to blend business and engineering is important and I would encourage any student to look beyond the actual engineering and try to get a scope of the entire business process.

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## David Billington Lectures at Smith College on the "Art of Structural Design"

*Submitted by Dr. Sanjay Arwade, Assistant Professor, in Structural Engineering and Mechanics*  
On Friday, October 13th a group of CEE students and faculty made the trip across the Connecticut to hear a lecture by David P. Billington, Professor of Civil Engineering at Princeton University, entitled, "The art of structural design, a Swiss synthesis," accompanied by the Smith College Museum of Art exhibit "The art of structural design, a Swiss legacy." The lecture, a whirlwind presentation of over 80 images, traced the careers and great works of four Swiss structural engineers, Othmar Ammann, Robert Maillart, Heinz Isler, and Christian Menn, and emphasized the creative side of structural engineering. Students reported finding great inspiration both from the lecture and from the accompanying exhibit, which, in addition to photographs and artifacts, includes scale models of some of the greatest works of structural art, the George Washington Bridge, the Sunniberg Bridge, and the Salginatobel Bridge, among several others. The exhibit remains open at the Museum until December 10, and I strongly recommend it.

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## Student Awards

**Anna Mermelstein** won the national student paper competition for the Water Environment Federation in the undergraduate category for her research on Membrane Bioreactors.

**Christina Stauber** won the student poster competition at the UMass Contaminated Soils, Sediment and Water Conference.

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## Civil Engineering Grad Student Wins Transportation Essay Contest

Kevin Heaslip, a graduate student in civil engineering, has won the Student Essay Competition sponsored by the Intelligent Transportation Society of America (ITSA). Heaslip's winning paper is entitled: "The Value and Benefits of HOT Lanes, FAIR Lanes, and Toll Roads to the Toll-Paying Driver." ITSA's Student Essay Competition is designed to encourage student interest and future participation in the development of intelligent transportation systems (ITS) and solutions; to provide an opportunity for today's transportation and engineering students to apply their knowledge in a thought-provoking and hopefully enjoyable competition; and to build awareness of ITS as a career path with unlimited potential. Heaslip's first prize was worth approximately \$4,000, including roundtrip transportation to the ITSA Annual Meeting in Philadelphia on May 7 through 9, with hotel accommodations, complimentary registration and expenses, and the opportunity to present his essay. In addition, Kevin will receive roundtrip transportation to the ITS Congress in London, from October 7 through 12, where he will present his winning essay.



In related news, Heaslip also won a \$1,000 prize for the Stantec Paper Contest, sponsored by District 1 of the Institute of Transportation Engineers (ITE). In addition to Heaslip's individual honors, our campus chapter of ITE also won the 2006 ITE District 1 Student Chapter Award, presented on May 18 in Cooperstown, New York. (May 2006)

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## Scholarships

It's that time of year again! Freshmen, sophomores, and juniors are eligible to apply for the Fall 2007-Spring 2008 academic year scholarships. Remember, the scholarship application process is only done once a year, so it is important you complete and submit an application by the deadline of February 15, 2007. To view the list of available scholarships and download an application go to: <http://www.ecs.umass.edu/index.pl?id=2356&isa=Category&op=show>.

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## Fundamentals of Engineering Exam (EIT)

For information about the FE exam, you may access the Professional Credential Services, Inc. website at [www.pcshq.com](http://www.pcshq.com). The spring exam is **scheduled for April 21, 2007** with an application deadline of March 1, 2007. You may download applicant information and applications on-line, or you may telephone 1-877-ENG-EXAM.

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## TEAAM Mentoring Program Hosts "Careers in Transportation Safety" Event

A "Careers in Transportation Safety" dinner and panel discussion was held on campus on October 17, 2006, as part of the Transportation Engineering Applied Academics Mentoring (TEAAM) program. The event, which featured four speakers, included a social hour and dinner followed by presentations and panel discussion. The distinguished panel of speakers included Elizabeth Alicandri, Director of the Office of Safety Programs at the Federal Highway Administration; Dr. Bruce Wilson, General Engineer in the Advanced Safety Technology Division at the Volpe National Transportation Systems Center; William Scully, Managing Engineer at MS Transportation Systems; and Dr. Donald Fisher, Professor in Mechanical and Industrial Engineering at the University of Massachusetts-Amherst. Each speaker presented information and answered questions on transportation safety at their organization, what students might consider in the job search process, and what can be expected from their early years of employment. Students had the unique opportunity to speak one-on-one with the presenters as well as to participate in a group question-and-answer period following the presentations. The event was attended by graduate and undergraduate students participating in the TEAAM program as well as staff mentors and transportation engineering faculty.

The event was well-received by students, staff mentors, and presenters alike. Since this is a pilot year for the TEAAM program, gathering feedback from students has been a key component of the program's implementation. Following the event, students were asked to complete an evaluation form. One student said, "The most valuable information for me was the difference between the kind of job you would do when working for private industry compared to a job in the public sector, as well as what you can expect from each type of job. This event totally changed my mind in terms of what I want and what kind of job I'm looking for." Several students expressed an interest in attending similar events that covered professional opportunities beyond transportation safety.

Elizabeth Alicandri, of the Federal Highway Administration, echoed the enthusiasm for the event. "I am so happy to hear that the students and mentors got something good out of the discussions... As always when I have an opportunity to speak, I did too! The enthusiasm, knowledge and interest in the room was palpable! Young people really do need to hear about the wealth of opportunities that are available to them, and I truly think a career in roadway safety ... is something that makes a real difference. The TEAAM program is wonderful in many ways and you should be very proud of the idea and the execution."



Ongoing TEAAM events include a series of career development/skills workshops, Thursday afternoon drop-in hours, and regular meetings between mentors and mentees involved in the program. For more information on the TEAAM program, please contact Dr. Michael Knodler at [mknodler@ecs.umass.edu](mailto:mknodler@ecs.umass.edu) or (413) 545-0228.

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## News from Student Engineering Groups

### **ASCE (American Society of Civil Engineers)**

*Faculty Advisors: Dr. Brena & Dr. Civjan*

*President: Matt Skelly and Vice President: Elsbeth Hearn*

First, I would like to thank everyone involved in the **Habitat for Humanity in Northampton**. With your involvement we were able to complete almost two weeks of work in one day; a significant accomplishment. Thank you all and I am looking forward to the next Habitat for Humanity event. December 10th is the next date and we will be working from 12-4 pm in Turners Falls. If you are interested please come to the next meeting.



The **concrete canoe team** is starting work on the mix. This requires several batches of concrete to be mixed and strength tested. Please contact Josh Rubero at [jrubero@student.umass.edu](mailto:jrubero@student.umass.edu) or Brian Misterka at [bmisterk@student.umass.edu](mailto:bmisterk@student.umass.edu) for details.

**The Home Sweet Home Project** allows volunteers to be a part of the design and construction of wheelchair ramps for disabled and elderly people. Please contact [mwskelly@student.umass.edu](mailto:mwskelly@student.umass.edu) for information on getting involved with construction.

Other projects include the **Steel Bridge Competition**; please contact Liz at [echagnon@student.umass.edu](mailto:echagnon@student.umass.edu). Everyone is welcome; upperclassmen in or who have taken upper level structural classes needed.

As a reminder the last **ASCE meeting will take place Wednesday, December 6<sup>TH</sup> at 6 pm on the lobby of the Fine Arts Center**. During this meeting elections will be held and the Balsa Wood Bridge Competition will take place. After the meeting we will be holding a dance with free food and a DJ. Thank you.

## ***EWB (Engineers Without Borders)***

*Faculty Advisors: Dr. Ahlfeld and Dr. Tobiason*

*President: Tom Chase and Vice President: Julie Gagen*

Meetings are scheduled in Marston 211 at 6:00 pm on November 14<sup>th</sup> and Tuesday, December 5<sup>th</sup>.

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## **Locate and Name This Bridge!**



This is one of the most revolutionary arch bridges in recent years, which was opened to traffic in 1994. It's the first American arch bridge to be constructed from segments of pre-cast concrete, a highly economical material. Two graceful arches support the roadway above. Usually arch bridges employ vertical supports called "spandrels" to distribute the weight of the roadway to the arch below, but this bridge was designed without spandrels to create a more open and aesthetically pleasing appearance. As a result, most of the live load is resting on the crowns of the two arches, which have been slightly flattened to better carry it. Already the winner of many awards, the bridge is expected to

influence bridge design for years to come.

Email your answer with the location and name of this bridge to [nofio@ecs.umass.edu](mailto:nofio@ecs.umass.edu) and correct entries will be eligible to win a prize! The winner will be drawn on December 4, 2006!

Last month's bridge was the Navajo Bridge Over Grand Canyon in Coconino County, Arizona. Congratulations to Julie Gagen who was September's Bridge winner!