WSU’s endeavor to support an industry in transition.
EAGER CONNECTION

The Students need your help to support Formula SAE and Concrete Canoe Projects.

It is no secret that engineering students today need more than a good education. As members of the Engineering Alumni Association (EAA), we are always searching for new ways to support each other, the faculty and the students, and thus, support our alma mater. Today, the EAA is 1,200 Engineers strong — one of the most proactive groups on campus — paving the way for the advancement of engineering education and technology at Wayne State University. One such program that has proven to help our graduates obtain hands-on experience is the EAA's own grant program - EAGER - Engineering Alumni Grants for Education and Research. In its fifteenth consecutive year, EAGER has proven to be a successful source of funding for collaborative student projects that promote teamwork, engineering ingenuity and creativity.

The WSU Team Ethanol, the 1995 Hybrid Electric Vehicle, the 1996 and 1997 Human Powered Vehicle Team, the WayneRover autonomous vehicle, the Mini-Baja vehicle, the IEEE Computer Center of Excellence, the 2001 Engineering Ball, and the 2009 and 2010 Concrete Canoe team were all supported by EAGER.

Make the EAGER CONNECTION.

It will make your membership in the EAA much more meaningful, and help elevate the national profile of your alma mater. Your donation will help assure that these collaborative projects continue to be challenging opportunities for engineering students — giving our graduates not only a first-rate education, but also the "hands-on" experience WSU students are known to graduate with. These students may also look to you for advice and mentoring. So let us know if you are interested in mentoring and/or donating in-kind gifts.

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My company will match this gift, company name _______________________________________
I would also be willing to mentor a student, my area of expertise _________________________
Enclosed is my check made out to WSU for:

❏ $50 
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Or charge my gift to: 

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MAIL TO:
Engineering Development Office
College of Engineering, Rm 2212,
Wayne State University
5050 Anthony Wayne Drive
Detroit, MI 48202
It is with deep sadness I write for this page in EXEMPLAR magazine traditionally reserved for the current dean of the college. As you know, my friend and colleague Ralph Kummler had been writing to you from this very space for the past eight years.

Our editor tells me that there have been two times in the past 22 years in the life of this magazine that the cover has been dedicated to a fallen college figure. That other figure was Howard Donnelly, possibly the most popular professor to teach at the college. And so, we dedicate this issue in memory of Ralph H. Kummler, who deserves a place on the cover, but also an honored place among the ranks of our most popular deans, including our first, Dean Arthur Carr.

It is natural that in death a divine light shines clearly to reveal to us the true essence of an individual. We dearly miss him. Ralph was the college’s greatest cheerleader. We all knew it. But it was so much a part of him that we tended to take it for granted. His smile and his energy were so strong, that now that he is gone, it is very hard to walk the halls without feeling his spirit.

As I write from his space, as I sit in his office, as I try to oversee the business of the college daily, as he did such a short time ago, I am humbled by that spirit and conduct affairs with him in mind.

I believe Ralph is following all the many encouraging activities that continue to take place at the college captured in this new edition of EXEMPLAR. As Ralph showed, nothing is more important than our students. Beginning last fall, we noticed a palpable spirit growing among our students expressed in a keen interest in becoming engaged in the college’s affairs and policies. We see this in the current student leaders who have created a series of Meet the College events in which they invite college administrators to answer their questions. The students have engaged themselves deeply in an important process to improve the college’s cultural climate.

The enthusiasm of our students is articulated in a new section added to EXEMPLAR this issue called Student Lives. The profiles of students in this section reveal their most extraordinary characters. Their presence also punctuates the Around the Helios and Features sections, highlighting their efforts in the Formula SAE and unmanned robotic vehicle competitions, and other university programs, including fencing, marching band, as well as undergraduate research. I’d also like to take this space to congratulate our civil engineering students who have participated so energetically for two years now in the ASCE Concrete Canoe Competition.

And so, while last year ended with the death of our leader, we continue in Ralph’s spirit, engaged and optimistic for our role to provide both the education and the atmosphere in which our students thrive, graduate as engineers, and enter the world to make it a better place.

Mumtaz Usmen, interim dean
A Celebration of a Remarkable Life

The auditorium in the new Marvin I. Danto Engineering Development Center (EDC) swelled with memories of the college’s immediate past dean, Ralph H. Kummler, as students, alumni, faculty, colleagues and staff gathered to remember him.

Kummler, a popular dean who stepped down last August to spend more time with his family, he said, was being honored by the college community eight days after he died unexpectedly Dec. 7 from an episode of arrhythmia while on his way to his office at the College of Engineering.

“My many of my associations of the College of Engineering were with Ralph H. Kummler,” said former WSU President Irvin D. Reid, as he, and a long lineup of speakers shared their memories of Kummler, who was 69.

To many, Kummler was the College of Engineering, one speaker said, punctuating a theme that ebbed through the stream of people and their testimonies.

Among those in attendance were Kummler’s immediate family members — his wife, Jean; three sons, Jeff, Brad and Randy; and their wives. University President Jay Noren and Provost Nancy Barrett attended and shared their remembrances as well.

“His death was untimely, and put us all into shock,” said Mumtaz Usmen, who took over the deanship from Kummler last summer and now serves as interim dean through a challenging period of transition for the college.

People arrived and settled into the auditorium as three WSU music students performed Beethoven’s Minuet and Andante and Cantabile from the second serenade on violin, viola and cello. A slide presentation cycled on the screen above the stage depicting Kummler’s life at the college stretching back through most of his 39 years at the college to when he was appointed assistant professor of chemical engineering in 1970.

“I served six years with an amazing mentor,” said Michele Grimm, associate dean of academic affairs. “He reminded everyone that their role was the success of students.”

Eight current and former faculty members of the Department of Chemical Engineering shared their personal stories about Kummler when he was chair of the department from 1974 until 1993. Yinlun Huang, professor of chemical engineering, shared how Kummler helped him achieve tenure faculty status two years after Huang had been offered a faculty position before being told that it had been changed to a two-year non-tenure track position.

Erhard Rothe, professor of chemical engineering, shared how a rift developed in the department when former Dean Ali Cambel established a research institute hiring outside of the department. Then Kummler became department chair. “He did a wonderful job,” Rothe said, and “after a while, people trusted him.” The rift was reconciled.

Speaker after speaker built a strong narrative weaving personal stories of how Kummler had personally made a difference in their lives.

Mary Savalle, BSME’07, said that when she was a freshman, Kummler had invited her to present her research experience at the Cairo International Conference on the Environment. Savalle’s father was concerned about the trip for such a young woman – she was only 18 at the time – but agreed when Kummler said he would take personal responsibility for his daughter. “I am one of thousands of people who had him in my life,” Savalle said. “I am going to miss him forever.”

The university is making plans for a university-wide tribute to Kummler this coming spring in conjunction with the commemoration of the courtyard area between the main college building and the EDC to be named “Kummler Commons.”

Please share your remembrances online by emailing dreich@eng.wayne.edu.
Ralph H. Kummler
November 1, 1940 - December 7, 2009

The College of Engineering at Wayne State University has lost one of its popular leaders and immediate former dean in the sudden death of Ralph H. Kummler, who succumbed to a heart attack as he drove to his office early Monday morning, Dec. 7.

Kummler was revered for his tireless dedication to students and the promotion of the College of Engineering, as well as the strong relationships he developed with alumni and industry. He is also considered to be the single-most individual responsible for the building of the new Marvin I. Danto Engineering Development Center at Wayne State, which was dedicated April 28, 2009.

The 69-year-old former dean was driving from his home in Commerce Township to his office at the College of Engineering near downtown Detroit when his car veered into the median strip of the John C. Lodge Freeway (M-10) and came to a stop. Ironically, a Wayne State student was the first to reach the car and find him unresponsive. He was pronounced dead a short while later at Sinai Grace Hospital in Detroit.

Kummler had been dean of the college for eight years until August when he announced he was stepping down to spend more time with his family. At that time, he said he wasn’t sure whether he would be taking a sabbatical – the traditional leave of one academic year every seven years – or remain to teach and support the college in other roles.

It turned out that he remained active in fundraising activities. At the time of his death, he was involved in creating and closing the “loops” – the strong connections with alumni and industrial partners he developed that often led to financial support for the college, according to the current interim dean, Mumtaz Usmen.

In a message to the Wayne State University community, President Jay Noren said about Kummler: “He was a profound and creative thinker, as well as an enthusiastic cheerleader and tireless fundraiser for the College of Engineering. And even more important, he was a universally admired member of the Wayne State family.”

Plans in process before his death to dedicate the courtyard area between the college’s administration wing and the Engineering Development Center to be called “Ralph H. Kummler Commons” speaks to his popularity. As faculty, staff, colleagues and students at the college gathered in hallways and corridors in the hours after his death to share and process the news, a look back at the comments made at his retirement in August formed common themes about the man.

Kummler was a strong supporter of the College of Engineering at Wayne State, which was dedicated April 28, 2009.

He was a leader stretching back to his youth when he was the class president of his high school in New Jersey, said Walt Bryzik, professor and chair of the Department of Mechanical Engineering. “And he was the chairman of the Wayne State Faculty Assembly when he was almost a brand new professor in 1973 or 1974. He worked it from both ends no matter what end he was involved with.”

Kummler was a strong supporter of the student. And he was the college’s greatest cheerleader. “His heart was for the school,” said Bryzik. “His heart was for the students, for alumni, for industrial partners.”

Throughout his career, Kummler was very active in engineering associations and societies, particularly the Engineering Society of Detroit, and the connections benefited the college greatly.

From the day he joined the chemical engineering faculty through his final days in August as dean of the college, Kummler’s heart had always been devoted to the college. He was always about connections, that is, fostering relationships with students, faculty, and alumni in industry that moved the college forward.

Kummler joined the faculty of chemical engineering as an associate professor in 1970 and was appointed full professor in 1975. He served as chairman of Chemical and Metallurgical (now Materials) Engineering from 1974 until 1993 and as associate dean for research from 1997 to 2001. He also was director of the Hazardous Waste Management Programs at WSU. He was appointed interim dean in May 2001, and became permanent dean in August 2004.

Kummler led numerous research and planning studies of environmental issues in the state of Michigan, including combined storm overflow studies on the Rouge and Detroit Rivers, industrial waste control, landfill gas emission studies, air pollution dispersion, auto exhaust testing and environment, and safety analysis of the city of Flint Department of Public Works.

He served on many pivotal committees and commissions throughout the state involving waste management and environment control. He was a principal leader in establishing and organizing the International Conference on Energy and Environment held in Egypt since 1989. He earned numerous awards, including the 1990 ESD-Affiliate Council’s Gold Award, a 1994 and 2004 ESD Distinguished Service Award, and the 1999 Horace Rackham Humanitarian Award.

Kummler is survived by his wife, Jean, their sons, Jeff, Brad and Randy, and their families. A funeral service was held Friday, Dec. 11, at the All Saints Lutheran Church in Hartland, and was followed by a luncheon reception at the church.

A special memorial gathering for Kummler — A Celebration of a Remarkable Life — was held, Tuesday, Dec. 15, in the Marvin I. Danto Engineering Development Center auditorium. The Kummler family requested that in lieu of flowers, contributions be made to the Ralph and Jean Endowed Scholarship Fund. Contributions are being matched dollar for dollar.

If you wish to contribute to his fund, please mail to Wayne State University, Attention: Fund Office, 5475 Woodward Ave., Detroit, MI 48202.
This is the most difficult note I’ve ever written.

Ralph and I were high school sweethearts – my best friend – the love of my life. Ralph was a loving and devoted husband, father, father-in-law, and Pa-pa. He was also devoted to Wayne State University, especially the College of Engineering.

It was wonderful that Ralph was able to attend the 2009 Night of the Stars where the college bestowed upon him one of the highest tributes – and just think, he was able to hear in person how he touched and influenced others’ lives. Ralph was dedicated to education and the pursuit of knowledge. He also was dedicated to bettering the world.

Thank you to all for your comforting words and sharing your memories of Ralph. He’d be so happy to know the Endowed Scholarship Fund for the College of Engineering will continue.

It has been an honor and a privilege to share this humble, gentle, yet passionate soul with you. Ralph will be so missed as he was truly an amazing and unique man.

So what now? You ask the question.

We carry on as Ralph would have wanted – no – expected us to do and we do our BEST.

I will continue my journey with Ralph in my heart always, as he has been since 1957.

Love,
Jeannie Kummler

I am deeply saddened with the news of Ralph Kummler’s passing away. Ralph was a mentor and role model for me. He hired me in 1979, the first woman faculty member in the College of Engineering, providing me the path to be first in many settings. I learned, grew and thrived under his leadership as a junior faculty member, first tenured woman faculty member and full professor and the first woman department chair in the college.

Ralph was a very charismatic, bold and visionary leader. He was a “doer” focused on completing tasks rather than discussing and planning tasks. He enjoyed “calculating” and finding ways of solving problems – a true engineer in leadership. Thus you are celebrating his many accomplishments.

I send my heartfelt condolences to Jean, Ralph’s and Jean’s three sons and their families as well as to his colleagues in the College of Engineering and the Department of Chemical Engineering and Materials Science at Wayne State University.

I commit to keeping Ralph’s candle lit through the scholarship established in his name.

Esin Gulari
Dean, College of Engineering and Science
Clemson University

To read the many other tribute letters we’ve received, visit EXEMPLAR online at www.exemplar.eng.wayne.edu
Faculty and industrial partners have been gathering at the college in recent months for a series of meetings to plan and develop electric drive vehicle degree programs expected to launch in the fall of 2010. The program is being called “E-3” for “Electrifying the Economy, Educating the Workforce.”

The degree programs—the first of their kind—make the College of Engineering ground zero for the pipeline of next-generation technicians and engineers needed by an industry transforming to electric drive vehicles. “Our proposed program will be a key component supporting President Obama’s goal to put one million plug-in hybrid electric vehicles on the road by 2015,” says Simon Ng, interim associate dean of research at the college. Ng wrote the grant proposal to the U.S. Department of Energy (DOE).

The $5 million grant was officially announced by Vice President Joe Biden last August, along with $966 million in battery and electric vehicle development and manufacturing in the state of Michigan as part of the administration’s Recovery investment. That makes Michigan the recipient of the biggest chunk of grant money for batteries, which is expected to result in 19,000 new jobs.

Currently, no degree program in electric drive vehicles exists in the United States, says Ng. “The auto manufacturers are training their EDV engineers and technicians mainly in-house. These components and systems are very much in a state of rapid scientific and technological development that will demand highly trained engineers and technologies with the highest level of technology education.”

Wayne State’s key partners in the degree programming are NextEnergy (the nonprofit alternative energy incubator located in TechTown just north of the university), and Macomb County Community College.

Ng envisions that there will be at some point approximately 500 students enrolled in Wayne State’s new degree programs training to be engineers in this emerging field. But it all depends on how fast the industry can ramp up manufacturing of electric drive vehicles, he says. “How many engineers does industry need? That’s a difficult question. Right now, zero. Probably they’ll be a demand in the thousands once industry starts producing these cars.”

There are about 1,000 prospective graduate students and 2,000 prospective undergraduates locally eligible for the new degree program, Ng says. The distance-learning and Web-based curriculum aspects of the proposal give the educators the potential to reach thousands of additional students in the state and across the country, he adds.

Wayne State was in a good position to build the new degree programs because of its deep historic relationship with the auto industry. The college offered the nation’s first comprehensive master’s program in alternative energy technology in 2006. In addition, as a member of the Partnership for the Advancement of Collaborative Engineering Education (PACE), its labs provide computer simulation modules, design tools and virtual experiments to cover a wide range of electric car design and simulation from product lifecycle analysis to design team communications.

Last fall, the Division of Engineering Technology within the college in partnership with the Michigan Department of Energy, Labor and Economic Growth (DELEG) launched a course in advanced battery systems for hybrid electric vehicles for engineers in industry.

The proposed Wayne State degree programs include a master’s and graduate certificate in Electric Drive Vehicle Engineering, a bachelor’s in Electric Transportation Technology, and an associate of applied science in Automotive Technology and Electronic Technology.

- David Reich
Wayne State researchers create head model for Global Human Body Model Consortium

A computerized brain and head model created by WSU engineers led by King H. Yang, professor of biomedical engineering and director of the Bioengineering Center, will be used to build an entire human body model to better predict the risk of injury from automobile crashes.

The digital human model project is funded by the Global Human Body Model Consortium (GHBMC), a group comprised of 10 automakers and two auto parts suppliers. The consortium was formed in April 2006 after the automakers decided to pool their resources toward developing a single model. Yang explains, “A human body model is a tool everyone could use; there’s no reason why everyone should develop their own.”

The GHBMC will begin producing four models – two male and two female in different sizes – but envisions building a family of virtual humans, from children to grandparents.

Crash dummies, which have been used since the 1970s, have improved automobile safety. However, because of differences in the human body, which are impossible to replicate, the auto design improvements based on these tests may actually make automobiles safer for dummies and not for humans. The GHBMC’s models will have the capability of predicting how organs, bones and soft tissue absorb the force of a car crash, something that rubber and steel dummies are unable to do.

The models will be developed using medical imaging techniques, including Magnetic Resonance Imaging (MRI), Computed Topography and laser surface scanning. Additionally, advanced engineering computing techniques are being employed such as Computer Aided Design and Finite Element Analysis.

Following an in-depth request to more than 40 top research institutions, the GHBMC selected six teams made up of universities and research institutions from around the globe to collaborate with each other and GHBMC’s members on this project. Six Centers of Expertise (COEs) were formed: one full body integration center and five body region centers for the head, neck, thorax/upper extremities, abdomen, and pelvis/lower extremities.

Yang explains that Wayne State’s proposal for the head was chosen because of the college’s rich history of bioengineering and brain and head injury research. “We made our first computerized head and brain model in 1990 and have at least 20 years of experience,” says Yang.

Pioneers in bioengineering, Wayne State is known as the first institution in the U.S. to perform world-renowned research in impact biomechanics. The interdisciplinary effort between the College of Engineering and the School of Medicine developed in 1939 when engineer H.R. Lissner and neurosurgeon E.S. Gurdjian began a collaborative effort to study the mechanisms of head injury.

Since then, WSU bioengineering has made significant contributions to crash and injury research. Head and brain models developed by Yang and colleagues have been used to improve auto safety design, closed head injury diagnosis, and brain tumor surgery.

According to Yang, WSU’s past and current research on brain and head injury makes it easier for them to complete the project. Yang notes that the state of the economy, and specifically the condition of Detroit automakers, who are all a part of the GHBMC, has meant a scaled-down budget for the project. But despite money restraints, Yang says the work will still get done, adding that it’s his devotion to a safer world that drives him. “I have spent 20 years working on it,” says Yang. “It is my passion.”

- Sydney Redigan

Members of the GHBMC are: Chrysler LLC, Ford Motor Co., General Motors Corp., Honda R&D Co., Hyundai Motor Co., Nissan Motor Corp. Ltd., PSA Peugeot-Citroen, Renault, Takata Corp., Toyota Motor Corp. and TRW Automotive.

The Centers of Expertise are:

- The Integration Center: Center for Injury Biomechanics of Wake Forest University, N.C., working in collaboration with Hongik University of Korea, Virginia Tech and the University of Michigan
- Head and Brain: Wayne State University
- Neck: University of Waterloo, Canada
- Thorax: University of Virginia, supported by the European Center for Safety Studies and Risk Analysis, France and the University of Waterloo
- Abdomen: The French National Institute for Transportation and Safety Research, supported by Virginia Tech
- Lower Extremities: University of Virginia, supported by the University of Alabama in Birmingham, and the Indian Institute of Technology, Delhi, India
PhD candidate hard at work on unmanned robotic vehicle

Imagine the day when vehicles travel down the road without drivers. To electrical and computer engineering doctoral student Shawn Hunt, that day is not too far off.

Hunt is building an unmanned robotic vehicle, called the "WAVE 2," to compete in the 18th Annual Intelligent Ground Vehicle Competition at Oakland University in Rochester, June 4 through 7.

The original WAVE, which stands for Warriors’ Autonomous Vehicle, was fielded at the same event last year for the first time in a decade. Wayne State University’s team was able to execute various commands in order to win a $500 prize.

"I felt good that we showed up and that we tried. But our goal is to qualify and do better than last year," says Hunt.

As Hunt, 32, expects to get his PhD this year, this is his last shot. Good thing he is resourceful. The competition includes an obstacle course that requires each vehicle to stay between boundaries while responding to commands during a limited time period. Hunt plans to use a new algorithm that he has been working on for his dissertation.

Shawn Hunt (left) with Sam Lee

The code can track points in a video feed and tell the robot where to go.

Darrin Ellis, associate professor of industrial and manufacturing engineering, is on board to advise the team again. The WAVE 2 is being built in his lab. Abhilash Pandya, assistant professor of electrical and computer engineering, is also lending his expertise.

"We are using the same robot base – a modified wheelchair – we worked on for 2009, with only slight modifications," says Hunt. "We plan to add two cameras that will look to each side of the vehicle to increase the overall field of view of the course. We are using a new circuit board that one of our team members built from scratch that will reduce the number of components that we need in our architecture."

Also, a sturdier mast will mount and stabilize the main overhead camera. The rear wheel will be replaced with a large plastic ball to increase maneuverability. And the shell will be waterproof.

Hunt is joined by other team members: Sam Lee, Prem Sivakumar, Shankar Manickam, Samar Al-Stouhi, Michael Jessie, Wilfred Wheeler and Vishal Lowalekar.

- Derrick Bean

CEE professor uses computer software to deliver fresh water efficiently

Carol Miller, professor and head of the Department of Civil and Environmental Engineering, has received a $1.48 million grant from the Great Lakes Protection Fund to develop computer software to reduce energy waste during water utilities delivery.

The software, which will allow water utility controllers to make “on-the-fly” decisions on the optimal way to take drinking water from its source, will be piloted at the Detroit Water and Sewerage Department (DWSD), the third largest water utility in the nation, providing service to Detroit and more than a hundred surrounding communities.

Miller explains that, currently, most water pumps are controlled by human operators who make their decisions on when and how to pump water from experience, often resulting in waste of water and energy. The software being developed will allow operators to look at a graphical screen that shows how much energy would be used from pumping at different times. More energy-efficient pumping operations should also translate into significantly reduced utility operations costs.

"Water utilities are the Detroit region’s third largest energy consumer," says Miller. "Any savings that can be found in delivery of water will be significant. Cutting down on every use will eliminate amounts of greenhouse gas, water pollution and wildlife destruction."

- Sydney Redigan

Miller expects the software to reduce the air and water footprint of water utility operations in one year by about 4.75 tons of carbon dioxide, more than two tons of methane, more than three tons of nitrogen oxides, and 200,000 pounds of sulfur oxide emissions.

Additionally, Miller says, the water quality of the Great Lakes will improve as less chemically and thermally modified water will re-enter the water system.

"We need to be better stewards of our water," says Miller. "We’ve been accustomed to cheap, clean water and don’t always use it conservatively. Recently, we’ve seen other regions in the country going through water shortage crises and have begun to look at ourselves and what we can do to conserve our water."

- Sydney Redigan

- Sydney Redigan
The second round of the U.S. House Judiciary Committee’s hearings on helmet-to-helmet impact injuries in football was held at the Margherio Family Conference Center at Wayne State University’s School of Medicine Jan. 4.

The committee, headed by Congressman John Conyers, was investigating the effect of concussions on National Football League (NFL) players with an eye to improve its rules and helmets. The committee’s real interest is to protect amateur youth players in college, high school and middle school, says Albert King, distinguished professor of biomedical engineering. Those players and organizations look up to the NFL as their role model.

King did not testify, but you can say he was an interested observer. As chair of the Department of Biomedical Engineering and former director of the Bioengineering Center, King and Wayne State have been at the forefront of head injury research in the country. He has studied head injuries for decades and has either led or been involved with the medical school in more than a few NFL-supported research studies.

The NFL is under scrutiny by Conyers and Congress as former players clamor for changes in the game rules. An increasing number of retired players are being diagnosed with dementia, disabilities and even early deaths due to brain injuries.

While the Wayne State research commissioned by the NFL over the years studied concussions and the dynamics of the players’ head injuries, King says he was never able to persuade the NFL to study the helmets to make improvements.

Congress is fighting back by “trying to beat up on the NFL for not paying enough attention to the effects of repeat concussions these football players are having,” King says. In the past, the NFL has rested on claims by its Mild Traumatic Brain Injury Committee that there is no solid scientific evidence linking repeated concussions and brain injury symptoms that occur later in life. But the key question posed by Conyers at the hearing at Wayne State is not whether the dots can be connected, King says, but “why, with the mounting evidence, hasn’t the NFL done something to improve the helmets?”

King says he decided to submit proposals directly to Conyers’s office to see if he can work to obtain congressional appropriations to conduct research using NFL helmets for the express purpose of improving them.

Albert King with BME Professor Cynthia Bir - Photo by Rick Bielaczyck

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The college fosters an educational environment that attracts female students in a number of ways, including offering strong degree programs women like, such as biomedical engineering, environmental engineering and alternative energy technology.

“We are very proud of the diversity of our graduating class, including the number of women that we are graduating from our engineering programs,” says Michele Grimm, associate dean for Academic Affairs in the College of Engineering.

“Women are often attracted to fields of engineering where they feel that they can have an immediate impact on society, such as biomedical engineering. We hope to continue to attract and educate an increasing number of bright young women in all engineering fields in the future.”

The college has a very strong chapter of the Society of Women Engineers (SWE) and also specifically encourages women in engineering through two summer camp programs: the Women in Engineering Training Program (WET), which invites middle school girls to learn about careers in math, science and engineering; and Girls Advancing in Math, Engineering and Science (GAMES), a similar program coordinated with the Girl Scouts of the U.S.A. that allows middle school girls to study astronomy, math and communication.

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Pending final approval by the Board of Governors, incoming freshmen can declare a major in biomedical engineering beginning next fall.

The program will train high-caliber engineers for a variety of industries where they are in great demand and will also increase undergraduate enrollment at the college, says Albert King, distinguished professor and chair of the Department of Biomedical Engineering. King is responsible for establishing what will be the college’s newest undergraduate program.

The college has offered masters and doctoral degrees in biomedical engineering since 1998, but King says there was significant interest from students and industry to develop an undergraduate program. “Biomedical engineering is a very important field. Engineers can make a great contribution to this area. Because many advances in medicine are technical, they require

engineers to assist and make it work, so engineers play a vital role in the advancement of medicine.”

The new program, to be taught by both engineering and medical school faculty, will offer concentrations in biomaterials, biomechanics, and biomedical instrumentation. Students will begin to integrate the biomedical and engineering sciences in their first semester through a freshman biomedical engineering design laboratory. This design experience will continue for each semester of the curriculum and culminate in a capstone design project.

The goal is to attract 30 to 40 undergraduates for the first year. “Biomedical engineering is a very challenging field, as it integrates two very different ways of thinking. We want very good students with very high grade-point averages,” says King.

“In addition to strong academic ability, all you need is an interest in both biology and engineering.”
You can say Carol Miller takes fresh water seriously. Miller, chair of civil and environmental engineering, carries bottled water with her as a constant reminder of the precious resource. In her passion for preserving the fresh water of the Great Lakes, she has helped shepherd a new group at Wayne State dedicated to saving, protecting and improving what’s left of it.

The Urban Watershed Environmental Research Group (UWERC) is comprised of Wayne State professors, researchers, administrators and students from law, medicine and engineering – individuals with a passion like Miller’s for preserving our fresh water heritage. The group members bring expertise from many different disciplines, hoping to create an information center accessible by all interested in the state of the water around them.

Miller shares the director role for UWERC with a colleague, David Pitts, associate professor of pharmaceutical sciences. “David has a strong passion for Michigan water resources and is especially interested in the effects of pharmaceuticals in our waterways and drinking water,” says Miller.

“The Great Lakes contain approximately 20 percent of the world’s fresh water and approximately 90 percent of the fresh water in the United States,” Miller reminds us. “This fresh water system provides drinking water for more than 15 million people in the Great Lakes region.”

The group wants to establish itself as an important resource for the region’s environmental communities, Miller says. “We want to make sure Detroiter are aware of us. And beyond that, we want to make sure Detroiter can enjoy their environment for many years to come. Wayne State will continue to be a leader in promoting and protecting the environmental health of southeastern Michigan. And we hope to become a model for other research groups working in an urban watershed.”

The group is creating an open-source digital library to contain all available data on pollutants in the region harmful to humans and wildlife. Any person or group doing research or with an interest in preservation can access as well as add data to the database. Much of the huge amount of current data already downloaded comes from Macomb County and the Regional Water Quality Information Management System.

The group members encourage all Detroit area and Great Lakes region residents to get informed about the issues stressing the Great Lakes ecosystem and to become involved in efforts to save the fresh water of the region. Miller says education is a “huge component,” adding that awareness needs to be stressed at school at an early age. To learn more about what the group is doing and what you can do, visit: uwerc.cs.wayne.edu.

- Derrick Bean

Wayne State University’s Formula SAE team is revving up for what it hopes is another round of success in its new team offices and lab in the Marvin I. Danto Engineering Development Center.

Part of a student design competition organized by SAE International, the Formula SAE West event will be held at the Auto Club Speedway in Fontana, Calif., June 16 through 19. Last year, the team ranked 67 of out 119 teams overall — a personal best – at the Michigan International Speedway. Small, formula-style racing cars from all over the world are judged in multiple categories during each event. “I’m very proud of how the team performed last year,” says Andrew Vaitkevicius, assistant captain. “It was a good starting point for this year.”

Vaitkevicius oversees projects, organizes events and keeps an “eye on the books,” he says. He is a sophomore in more ways than one. He was a business major, but his rookie experience working with FSAE influenced him to switch to engineering. “That was one of biggest factors,” he says. “The ability to work with your hands and actually gain experience that you use in a classroom is a lot more fun.”

Like most of last year’s dozen or so members, Vaitkevicius returned this year hopeful about the team’s future. “We want to make sure Detroiters are aware of the world are judged in multiple categories during each event. “I’m very proud of how the team performed last year,” says Andrew Vaitkevicius, assistant captain. “It was a good starting point for this year.”

Vaitkevicius oversees projects, organizes events and keeps an “eye on the books,” he says. He is a sophomore in more ways than one. He was a business major, but his rookie experience working with FSAE influenced him to switch to engineering. “That was one of biggest factors,” he says. “The ability to work with your hands and actually gain experience that you use in a classroom is a lot more fun.”

Like most of last year’s dozen or so members, Vaitkevicius returned this year hopeful about their chances. “We’re feeling optimistic,” he says. “Testing is the key. It’s all about failures and how we adapt to them.”

Vaitkevicius hopes the head start will go a long way. The team plans to thoroughly test their vehicle for at least two months before competition, unlike previous years when the finished product was completed just weeks (or sometimes days) before a major event.

Michele Grimm, associate dean for academic affairs, has advised WSU’s FSAE teams since 2003. She says the new lab and machining tools have helped a lot. “This has been a key aspect of the team’s ability to progress this year,” says Grimm. “The 24/7 access to a design and manufacturing space, equipped with machine tools donated by Ford and GM, has made a tremendous difference in moving forward this year.”

The goal is to place in the top 25 at the California Speedway by reducing the car’s weight and increase power by simplifying various functions — steering, braking, the powertrain and the electrical system — down to fewer parts. The wheelbase was shortened by two inches. Vaitkevicius says the team needs to be “aggressive” and try new things, such as a carbon fiber muffler, to have a more competitive power-weight ratio.

The only roadblock now is working around everyone’s class schedules, Vaitkevicius says.

- Derrick Bean

The 2010 FSAE Wayne State team:
Sanket Sirpotdar, Andrew Vaitkevicius, Steven Sute, Adam Niner, Bhavesh Paradkar, Kristina Vujic, Robert Niemczyk, Gil Poisson and Lex Dodson
Engineering students join new WSU marching band

Wayne State University's marching band. Wayne State's marching band emerged after 20 years by taking over the Tom Adams Field at the homecoming game Oct. 3, 2009. At the game, the band played the WSU alma mater, a version of ABBA's "Dancing Queen," and the national anthem. "They sound great," music lecturer and band director Janet Wright-McCasll says. The determined ringleader was hired last summer to revive the formerly world-renowned band.

Valikodath and Brosnan say the marching band has already boosted school spirit and helped Wayne State take down Ashland University 47-40 in a triumphant return both on and off the field. "A marching band helps out with school spirit," he says. "It almost seems wrong if you go to a football game and there's no marching band. The halftime show isn't the same with music being played over the P.A. system."

In a short time, about 50 would-be band members had to put in long hours behind the scenes and at rehearsals to make homecoming a reality. Wright-McCasll says some students brought their own instruments while waiting for new ones purchased by the university to arrive.

Considering all the challenges that arose leading up to the big game, Brosnan says he is proud of the marching band's performance, and that the hard work paid off. "One of the biggest difficulties is most marching bands start in the summer with a camp, work with techniques, pass out music, get to know stuff," he says. "We had so many conflicts with people working and classes that we had to learn all the music on our own or outside of rehearsals. We basically had to do everything on an accelerated timescale. But, that's pretty impressive."

- Derrick Bean

Concern for preserving the environment and its resources has created a growing demand for engineers specializing in sustainable practices.

In fall 2009, the WSU College of Engineering began offering a graduate certificate program in sustainable engineering which has positioned the university at the forefront of sustainability education in southeast Michigan.

Carol Miller, professor and chair of the Department of Civil and Environmental Engineering, together with Yinnun Huang, professor of chemical engineering and materials science, worked on creating the program.

"Sustainable engineering strives to create processes and systems that do not degrade the world around us," says Miller.

The program was created to satisfy students interested in learning sustainable practices as well as employers desiring this specialty in graduates. "As our students enter the workforce, they are being asked to accommodate for sustainability," Miller says. "This program meets the demands of employers. We need engineers with this expertise because many engineering projects now require the sustainability component."

Miller notes that a sustainability program is especially appropriate at Wayne State for several reasons. One is location. "We're in the heart of the largest freshwater resource, and we need to be good stewards of it," says Miller.

The program complements the college's alternative energy technology graduate degree program, now in its fifth year. It is intended for both current graduate students as well as the technical and scientific workforce of the metro Detroit region.

The program requires 13 credits of sustainable engineering education in chosen courses from all of the engineering departments. Students can choose from such courses as "Water Supply and Wastewater Engineering," "Ethics in Engineering and Construction" and "Alternative Energy Technology System and Design."

- Sydney Redigan

Civil and environmental engineering senior Luke Mackewich is happy to be your 2009 Homecoming King.

Mackewich says he was "pretty excited" but never aspired to be homecoming king. Rather, he was convinced to run by people close to him. "One of my friends actually won the election," he says. "They figured I knew a lot of people, so I had a decent shot."

Supporters asked him to accommodate his study schedule and run anyway. "I had to do everything on an accelerated timescale. But, that's pretty impressive."

- Derrick Bean
Luke Popiel, a sophomore studying electrical and computer engineering, had an eye-opening experience on a trip to Turkey last summer. He, along with eight other Wayne State students, arrived in Istanbul May 26. Two weeks later, Popiel had a new outlook on that part of the world.

The College of Engineering Study Abroad program allowed Popiel to see beyond what he was taught in a required course: PS 5999 (Islam, Secularism, and Democracy in Modern Day Turkey). “The history helps me to develop critical thinking skills that are needed in order to work in the Intelligence Community (IC),” says Popiel. “The best way to learn though was to go there and see what we discussed in class. When we went there, we realized Turkey is a very westernized and secular country.”

“I was very surprised by the hospitality of the Turkish people. All the Turkish people we have met have been very nice and helpful. I was very surprised since I thought America was quite hated in that particular country. It has changed my view of Turkey. I was not prepared to be welcomed to their country as I have.”

Popiel says what he enjoyed about Turkey is that he and his classmates came to study the country as students rather than visitors. “The group was led to think deeper than tourists. Our tour guide gave us great details about the culture and the people. One of the things I enjoyed the most was learning the history of Turkey. I did not know Turkey has such deep and rich history.”

The itinerary included landmarks in Canakkale, Izmir, Pamukkale, Cappadocia and Ankara. Popiel and others were impressed by ancient sites from the Ottoman Empire. The group visited different infrastructures, aqueducts and ancient underground water systems.

Gerald Thompkins, associate dean, student affairs, and program director for the Center of Academic Excellence (CAE) in National Security Intelligence Studies, organized the trip. He was also a group leader. Mumtaz Usmen, interim dean and a native of Turkey, was the other group leader and served as interpreter.

The objective of the Study Abroad program is to prepare students for careers in the intelligence community. “The trip was designed to provide students with a greater understanding of various cultures, languages, geopolitical issues, and a cultural experience,” says Thompkins. “In addition to the class, students and administrators went through thorough briefings on Turkish customs.”

The group visited three universities in Turkey (Yıldız Technical University, Bogazici University and Maramara University). Thompkins observed how these schools are affected by the depressed global economy and “facing the same problems with people not finding jobs after graduation.”

Popiel says his perception has been altered by reality. “It was a good experience, and I am definitely going to go back in 10 years or so and see how things have changed.”

Tompkins says he selected Popiel and the other students because they “represented a cross-section of academic disciplines.” The other students were: Jamal Alezzani (electrical and computer engineering), Kelly Rose Foster (mechanical engineering), Mark Mock (journalism), Tosi Cleveland (political science), Piotr Zagorskis (political science), Kwabena Ananda (sociology), Sarah Teller (criminal justice) and Christine Morris (pre-nursing).

It was the first time Study Abroad participants traveled to Turkey. In 2008, a group of students went to South Africa. Plans are being made to visit China for the 2010 destination.
The 4.0 graduate: being perfect isn’t about being perfect at all

Last year, Samantha Staley earned a bachelor’s degree in mechanical engineering from Wayne State University with a perfect 4.0 GPA. She completed her collegiate career with 177 credits, several awards and scholarships, and the role of valedictorian. She is now in her first year of studies at the WSU School of Medicine.

Chin An Tan, professor, mechanical engineering, describes Staley as simply the best student he ever had. “Her intelligence, diligence, and understanding of engineering principles surpass all top students I have met during my 20 years of teaching at Wayne State University,” says Tan.

Achieving and maintaining a high scholastic average is nothing new for Staley, who earned just over a 4.0 in high school by taking advanced placement (AP) courses.

Although she makes it look easy, the summer cum laude graduate insists that her success required a ton of effort.

Staley followed a pre-med curriculum while studying mechanical engineering, two fields that may seem worlds apart. But the plan was a calculated move from the start. “I saw engineering as a choice that would give me options when I graduated. Whether I chose business, medicine, law, or engineering, I knew that a degree in engineering would allow me to achieve any goal I set for myself,” says Staley.

Ben Langrill, BSEE ’08, MSECE ’09, is a friend who graduated with Staley last May and served with her on the Engineering Student Faculty Board. He is “an amazing woman; one of my good friends all throughout college,” he says. Staley knows how to balance study and fun, Langrill adds. “She knows how to let loose when the time is appropriate.”

But when it comes to school, Langrill says Staley has an “incredible” work ethic. Staley says studying is priority number one. “As a student, my primary job was to study. I studied as hard as I could and took advantage of resources. There is no magic. Simply hard work. Additionally, I know if I don’t seize an opportunity, someone else will. So I take advantage of anything that comes my way.”

Balancing work and play has not always been easy. When Staley was younger, she was often teased for the amount of time she studied. Pushing herself in school became stressful over time until she learned to cope with the pressure. “I demanded perfection from myself and it got quite tiring. Engineering classes are no walk in the park. Later on, I learned to deal with my stress better and put things in perspective. It became more important for me to learn the material than to get a good grade. The great thing was that good grades resulted from good learning, so the focus did not have to be on grades.”

Her parents, David and Cathy, play important roles in her success as a student and person, and Staley thanks them for their support. “There were often times they had to help ease my stress and remind me of the important things in life. Having a comfortable place to come home to was a great benefit in college.”

Staley says her parents were not hard on her about grades. Instead, they tried to calm her down. Her father instilled the idea of being active and gaining work experiences when she was in high school. When Staley wasn’t playing for a women’s softball team, she was working as an umpire or coaching or running a lawn-mowing business with a friend during the summer.

“My dad inspires me because he loves what he does. During these tough economic times, it is difficult to find an engineer in the automotive industry who looks forward to going to work each day. But my dad does. He has taught me the importance of living with passion and pursuing something that will make me happy in the future.”

And her mom? “My mom is a stay-at-home mother. She is the rock of our family and keeps me calm when I would get stressed. I hope to one day be able to provide the love and care my mother has provided for me to my children. She has been a huge role model and I consider her one of my best friends. On a normal day, I talk to her about three times or more on the phone.”

College has expanded Staley’s concept of home. Beyond her house in Flushing, she is a proud Detroiter as well. “I have lived in Detroit for the past five years and love it. I like being able to go home where it is quiet and then leave to go to Detroit where there is always something going on. The difference allows me to never really get tired of my surroundings.”

Being a top student leader in urban Detroit attracts outside attention. National reporters often come here to document its demise. But Staley told CNN Money she doesn’t plan to leave Detroit (in an April 2009 interview titled, “Should I Stay or Should I Go?”). In the article, she expressed her optimism for the city’s future despite Michigan having the highest unemployment rate in the nation. “There’s a pride among the people who live here. The feeling is that we know what it’s like to struggle, but we can overcome.”

Preparation is a major key to Staley’s success. “Plan ahead and have a goal,” she says. “In school, our counselors do the best they can to help us, but only we know what our strengths and weaknesses are and what our ultimate plans are. As a freshman, I plotted out all the courses I was going to take in each semester for the next four years, so I knew what to expect and when. If it didn’t work out at the time, I changed it up. But it really helped to have a concrete plan on paper that I could work with.”

Staley wants to become a physician though she is unsure of the specialty. However, her desire was reinforced by tragedy. “I was given the Live the Dream Scholarship formed in memory of my cousin who passed away at the age of 11,” says Staley. “He had an inoperable brainstem tumor and, through his fight, he expressed a desire to help others in similar situations. This was the foundation of my pursuit of a medical degree.”

As an undergraduate, she worked as a student assistant for the biomedical engineering laboratory. Donald Sherman is a research assistant who worked closely with Staley while studying injury-biomechanics. Sherman says Staley would always make sure she knew what was going on from the beginning. And she would stop and ask questions when she wasn’t sure about something.

Outside of school, Staley keeps busy doing the things she loves. In the spring and summer months between graduation and med school, she spent as much time as possible with her family and friends. She has two nephews and says it is fun to watch them grow. Some of her favorite things include going to her roots as a self-proclaimed “tomboy.” These include: backpacking, hiking, being outside, going to Eastern Market, exploring Detroit, riding her bike down to the riverfront and to Belle Isle, and going to concerts, art galleries, and poetry slams, and traveling.

After all she has accomplished, Staley has no shortage of goals. “My father and I have always joked about writing a book together. I would love to run an arts and wellness camp for youth. I believe that through arts, children can develop creativity and confidence, both of which are important for a successful future. Additionally, kids need to be coached in order to live healthy. They need to be taught this value and how fun and easy it can be,” says Staley.
Senior Vanda Ametlli takes lead at the COE

Industrial and manufacturing senior Vanda Ametlli is the president of the Engineering Student Faculty Board (ESFB). She is also chapter president of the Institute of Industrial Engineering (IIE), vice president of the College of Engineering’s Society of Women Engineers (SWE), and the list goes on.

“At the start of my junior year I was involved in everything!” Ametlli says. “I was always so involved. As a shy high school student, she didn’t want to do anything, you have the opportunity to be a leader.”

The 21-year-old Ametlli has accumulated several awards at WSU. She has been on the Dean’s List since 2007. She won the Tau Beta Pi Outstanding Sophomore Scholarship in 2008. She was honored for her community service for the 2008-9 school year.

Ametlli will be the first to tell you that she wasn’t always so involved. As a shy high school student, she “didn’t take advantage and step up to be a leader.”

With so much on her plate, she is thankful for the support of her family. “My parents have a pretty good work ethic, which has helped me keep track of everything and stay motivated,” Ametlli says. “It has helped me in school and to get involved.”

Today, she joins other engineering students on visits to Catholic high schools once a semester to talk to students about engineering and encourage them to take charge. She likes to promote industrial engineering because, she says, people may not know what it is or what industrial engineers do. And she volunteers with foundations such as “Make-A-Wish” and Girls Scouts of America.

“She isn’t sure what she will do with her engineering degree. “I tell people all the time, ‘I take it a semester at a time.’ Maybe academia – teaching – but I want industry experience first.”

She knows her leadership experience will be helpful regardless of what she decides to do. And she isn’t worried about the weak economy because she has developed connections through her involvement. “I’ve kept a pretty optimistic perspective on it,” she says. “I’ve been pretty good at networking throughout these four years. I would like to stay in Michigan, but I’m willing to move. With industrial engineering, there’s health care, manufacturing and the service industry. That’s why I chose it. It’s pretty flexible in the industry for whatever you want to pursue.”

Vanda Ametlli, ranked by Associate Dean Gerald Thompkins (left) and Interim Dean Muntaz Ussen (Photo by Almora del Arte)

Ametlli says she was destined to be an engineer. “My dad has a degree in metallurgy engineering,” she says. “I guess I was always inspired by that. In high school, I always liked math and science. I took statistics as an elective. I like numbers. Part of industrial control [her field of choice] is statistics. It has a lot to do with crunching numbers.”

Mackewich, 22, was the only student from Wayne State University, or from the state of Michigan for that matter, working on the project. Not enough people applied, says Mackewich.

Mackewich worked on projects designed to improve water sanitation, including a computer hydraulic model for a water distribution system. The piping structure provides access to clean drinking water, septic tanks and proper disposal methods. “The computer model covered the water distribution systems from the wells to the water towers to the houses,” says Mackewich.

He also surveyed different sites (using GPS to help plan placement of the water system), observed sewage lagoons, and inspected and made recommendations based on high levels of discharge. “It was good. It was lot of fun. I learned a lot,” says Mackewich. The IHS falls under the United States Public Health Service Commissioned Corps, aiming to improve the health of American Indians and Alaska natives.

Mackewich participated in the Sanitation Facilities Construction Program (SFC), an environmental engineering component of IHS. The SFC Program provides assistance for the cooperative development and continuing operation of safe water, wastewater and solid waste systems, and related support facilities.

Mackewich spent his spare time hanging out, meeting Native Americans, and going to rodeos and powwows (traditional ceremonies complete with feasts, chants and dancing).

The SFC workers help small towns across the country with populations of about 10,000, or communities in which local governments or homeowners can’t afford to pay for sanitation improvements, Mackewich says.

Mackewich was supported generously for his service, receiving $3,200 a month after taxes. “The program helped me search for an apartment, and I was given a monthly housing and food allowance (tax-free),” says Mackewich. “I ended up finding an apartment in Tulsa, about 40 minutes from where I worked. Another benefit included eight paid vacation days.”

Luke Mackewich, a senior in civil and environmental engineering, had an experience last summer he can tell his future children and grandchildren about.

He worked to improve water sanitation on several American Indian reservations in Oklahoma on a paid internship for the Indian Health Service (IHS). “I wanted to get into something that was actually helping people,” says Mackewich, who says he grew from the experience of living on his own and helping others in a different part of the country.

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His name is Viacheslav Zingerman, but you may know him as Slava. He is one of Wayne State University’s most decorated and humble warriors. With three championships under his belt, he can become the first ever to win four consecutive NCAA titles in men’s epee fencing.

Zingerman, a senior in electrical engineering technology, has come a long way. The 26-year-old was born in Noyabursh, Russia, and raised in Ashkelon, Israel. His Israeli coach, Alexei Cheremski, turned the talented Zingerman into a winner in Israel where he won the national title at age 15 and the World Junior Cup at Zingerman into a winner in Israel engineering technology, has come a

With three championships under his belt, he can become the first ever to win four consecutive NCAA titles in men’s epee fencing. Zingerman won his first national men’s epee title as a freshman in 2007. He then served his country as all age 15 and the World Junior Cup at

His only goal was doing it for like half my life,” he says. He is thankful for the opportunities that came from fencing. “I've been doing it since I was like 11. It just seems like I've been doing it forever — high school, military, college… I enjoy it. This is how I got to college. This is how I got to the U.S., basically.”

Fencing is Zingerman’s life. He practices at WSU nearly every day, and holidays he goes to New York to work with Cheremski. He is also a true student-athlete. He was named to the Coach’s Honor Roll with a GPA of 3.0 or higher for the fall 2007 and 2008 semesters.

He is thankful for the opportunities that came from fencing. “I've been doing it for like half my life,” he says. “I just like it. I've been doing it since I was like 11. It just seems like I've been doing it forever — high school, military, college… I enjoy it. This is how I got to college. This is how I got to the U.S., basically.”

There are three categories of fencing, each with its own weapon: foil, sabre and epee. Zingerman uses the epee, which he says feels like a real sword. “I didn’t choose it,” he says. “There was only this weapon back in Israel. I didn’t have a choice.”

The NCAA’s 2010 Fencing Championship Midwest Regionals were scheduled for March 13-14 at Northwestern University in Evanston, Ill., and the finals for March 25-28 at Harvard University in Boston, Mass. (too late for EXEMPLAR’s press deadline).

Being a three-time national champ might be enough for some, but not Zingerman. “Honestly, before I got here, I didn’t even know about this NCAA division,” he says. “For me, I’m more concerned with World Cup, Olympics — that kind of thing. So, I would like to get to the Olympics. That would be the goal.”

He plans to graduate in 2011 and may be thinking of the American dream after all. “First, I want to find a job, start a life. I would like to move to New York, find a job there,” he says. “And if I could continue to work in my engineering field, it would be awesome.”

Zingerman hopes to go into engineering management in product development. “I like to be around people,” he says. “I guess I just don’t want to be sitting in the office doing the same thing every single day.” Besides the military and fencing, Zingerman says he has never worked. “I will take anything,” he says. “I’ve been studying for four years, and I don’t really know what my future job is going to be about. But I hope I will like it.”

The journey to America was influenced by friends and his former coach who moved to New York when Zingerman was a teen. He was encouraged to come to WSU by Anna Garina, former three-time epee NCAA champion. “’04, ’05, and ’07” from Ukraine. Zingerman came to the right place. Wayne State has a storied history of successful fencers. Of the 12 previous three- or four-time NCAA fencing champs, four competed at WSU (Zingerman, Garina, and men’s foil champs Greg Benko (’74-’76) and Ernest Simon (’78, ’80-’81).

To learn how Zingerman did at the NCAA Fencing at the NCAA Fencing Championship Midwest Regionals, visit the new EXEMPLAR Web pages at: www.exemplar.eng.wayne.edu
Logesh Kumar Natarajan, a graduate student in mechanical engineering, was elected to the Student Council at the Acoustical Society of America, representing the Structural Acoustics and Vibration Technical Committee.

Zdravko Nikolik (BSECE’09) received the Mayor Elbert A. Welsh Education Award last spring, presented by the Detroit Post Society of American Military Engineers (SAME). The annual award recognizes one distinguished student pursuing a bachelor’s degree in engineering or science.

Roland Bogdani, a senior in civil and environmental engineering, spent the summer working for the Indian Health Service (IHS), part of the US Public Health Service Commissioned Corps. The IHS aims to improve the health of American Indians and Alaska natives. Luke worked as a part of the Sanitation Facilities Construction (SFC) Program, which is the environmental engineering component of the IHS health delivery system. The SFC Program provides assistance for the cooperative development and continuing operation of safe water, wastewater and solid waste systems, and related support facilities.

Samantha Staley (BSME’09) was awarded the EAA Outstanding Senior Award and junior Luke Popiel was awarded the EAA Freshman/Sophomore Award at the 2009 Honors Convocation held last April. Both awards are sponsored by the Engineering Alumni Association.

Four graduating seniors received the Robert G. Wingert Award at the 2009 Honors Convocation. The award recognizes students who demonstrate exceptional qualities of character, scholarship and leadership. A college-wide student/ faculty selection committee selected Noel Bezaire (BSChE’09), Priyanka Gupta (BSECE’09), David Low (BSIE’09) and Samantha Staley (BSME’09) to win the awards.

Roland Mack (BSEE’09) and Hugh Griffin (BSET’09) received the Howard M. Hess Award at the 2009 Honors Convocation. This award for academic excellence is given to the outstanding Engineering Technology graduating seniors from each semester.

Slava Zingerman, a senior in engineering technology, became the second person in NCAA men’s epee history in 2009 to win three consecutive NCAA titles since the NCAA competition began in 1941.

Elias Taxakis (BSME’09), Kevin Miles, a junior in chemical engineering, Elizabeth Halash (BSECE’09), Kun Wang, a graduate student in electrical and computer engineering, Rebecca Lindsey, a senior in chemical engineering, and Roland Bogdani, a senior in civil and environmental engineering, presented research at the Wayne State University 2009 Undergraduate Research Conference held Nov. 13. The conference is hosted by the Office of Undergraduate Research. It showcases the university’s best undergraduate research projects and allows student researchers to share their work through panel and poster presentations. Many students are recipients of undergraduate research grants, and all work closely with faculty mentors.

Two teams of Wayne State University students claimed second and third place in the 2008-2009 Hydrogen Education Foundation’s Hydrogen Student Design Contest. Last year’s contest called upon teams of university students from around the world to design a green student center powered by hydrogen for the State University of New York – Farmingdale Campus, using a theoretical budget of $28 million dollars. The students from Wayne State Team 1 advised by Ming-Chia Lai, professor of mechanical engineering, were Walter Bies (BSME’08), Nick Campbell (BSME’09), Pao Rue (BSME’08), Michael Nowicki (BSECE’03, MSAET’09), and Erin Pravato (BSME’08). Their proposal earned them 175 out of 210 possible points. Wayne State Team 2, also advised by Professor Lai, was made up of Hassaan Manceor (BSME’09), Andrew Dickerson (BSME’09), Scott Martin (BSME’09), Riki Patel (BSME’09), and Steve Znoj (BSME’09). Their design scored 155 of 210 points.
John Cavanaugh works to reduce pain and suffering from whiplash injuries

By Derrick Bean, College of Engineering Public Affairs Writer

Have you ever been rear-ended by another car? If so, you may be familiar with whiplash.

Professor John Cavanaugh, MD ‘84, hopes his studies will one day make people and their cars safer. Cavanaugh has been studying the biomechanics of trauma and spinal pain at Wayne State since 1985. He is driven by a desire to understand and prevent injuries.

“I was originally a structural engineer,” Cavanaugh says. “I later went to medical school. I decided to combine my engineering background with medical research, and I went into biomedical engineering.”

An important area of biomedical engineering is biomechanics, which analyzes stresses and strains on the human body, including those caused by injury. “Injury is a major public health problem. Any improvement we can make in safety standards will improve the overall health of the general public,” says Cavanaugh. “When it comes to injury, it is much more effective to prevent injury than to treat it after the fact.”

In the United States, it is estimated that more than four million injuries occur each year from motor vehicle accidents. The World Health Organization says the number of deaths per year from road traffic accidents exceeds one million worldwide. Unintentional injury is the leading cause of death for young people.

“The better we understand injury mechanisms, the safer we can design cars and reduce the number of injuries, deaths and human suffering,” says Cavanaugh.

Cavanaugh began his whiplash research in 2001 thanks to $1.6 million in funding from the U.S. Centers for Disease Control and Prevention (CDC). He and his lab intend to discover specifically where whiplash pain occurs, why it persists, and how to prevent it. Chaoyang Chen, associate research professor, and Srinivasu Kallakuri, research assistant, have been involved with Cavanaugh and his work since it began.

Cavanaugh says chronic neck pain and low back pain have an effect on just about everything you do. “Neck sprains are the most common type of injury from motor vehicle accidents and result in an estimated 900,000 emergency room visits per year,” he says. “Doctors, for years, have been trying to figure out where the low back pain and neck pain come from. Sources include the discs, the facets and the surrounding muscles. However, discs are often degenerated in people who are pain free.”

In the CDC study, Cavanaugh and his lab have focused more on the facet joint, which may be the most important source of whiplash pain.

“Most people know how painful a jammed or dislocated finger can be. The facet joints are very similar.” His lab has found that these joints have a rich nerve supply that fires abnormal discharges when the joint is stretched beyond the normal range as in a whiplash event, and the surrounding muscles react with signals that indicate spasm.

“Computer models of the human body are being developed that measure how much strain is likely to cause a whiplash injury or a traumatic brain injury,” Cavanaugh says. He explains that strain in soft tissue is similar to stretching a rubber band. When you stretch the axons in the brain more than 20 percent of their original length, the result can be serious brain injury. When you stretch the joints in the neck more than 40 percent of their original length, the result can be serious neck pain.

“The Insurance Institute for Highway Safety (IIHS) performs crash tests with different manufacturers’ seats to determine how well they protect against whiplash injury at 10 miles per hour,” Cavanaugh says. “The IIHS uses a BioRID (Biofidelic Rear Impact Dummy) that has a more human-like neck in rear impact than previous car crash dummies.”

The next step, Cavanaugh says, is to develop a car crash dummy and a computer model that can measure the stretch of the facet joints to prevent these injuries in the future.

Not only is the research by Cavanaugh and his lab of potential benefit to public health, but also to Wayne State and its students. “Our research provides Wayne State national exposure because much of the funding for this comes from the federal government. And it is presented at conferences nationwide and in other parts of the world,” he says.

Research on whiplash and spinal trauma by Cavanaugh’s lab received the John Paul Stapp Best Paper Award at the 2005 Stapp Car Crash Conference and the Best Student Paper awards at the 2005 and 2006 conferences. Cavanaugh adds that PhD students who worked on these projects have now begun their own successful careers. Current students in biomedical engineering continue to get hands-on experience in these research projects as well.

Cavanaugh wants to continue in future projects to combine biomechanics with neuroscience, hoping that this combination will lead to further reduction of chronic pain and injury.
The College of Engineering congratulates Simon Ng, professor of chemical engineering and director of the National Biofuels Energy Lab (NBEL), who has been named the college's interim associate dean of research.

Ng replaces Mumtaz Usmen, who was appointed interim dean of the college last August.

A member of the faculty since 1986, Ng’s research focus has been heterogeneous catalysis, sensors and thin films, biomaterials and nanotechnology. His background and interest have led him in recent years to leadership roles in the emerging field of alternative energy and renewable fuels.

In fall 2004, Ng became director of the new Alternative Energy Technology engineering graduate degree program after being awarded a grant for the project from NextEnergy of Michigan. The program is the first alternative energy degree program in the nation.

Ng became director of NBEL in 2006 when he received a grant from NextEnergy and the U.S. Department of Energy (DOE). The NBEL is working to develop the next generation of biodiesel with standardized performance and cold flow and stability properties.

Ng is also the project director of the recently announced $5 million DOE grant to develop and implement comprehensive degree and certification programs in electric drive vehicles in cooperation with Macomb Community College and NextEnergy.

He is a recipient of the 2008 Wayne State Gerenshow Distinguished Faculty Award; he was named distinguished faculty by the Michigan Association of Governing Boards of State Universities; he is a winner of the Wayne State President’s Award for Excellence in Teaching; he is a WSU College of Engineering’s Excellence in Teaching Award and Outstanding Teaching Award recipient; and he is a Wayne State Career Development Chair Award recipient, among other recognitions.

Leslie Monplaisir, is new chair of Industrial and Manufacturing Engineering

Leslie Monplaisir, professor of industrial and manufacturing engineering, is the new chair of the Department of Industrial and Manufacturing Engineering.

He was appointed to the three-year position in August 2009 when Kenneth Chelst, former chair of the department, decided to return to his faculty position after six years as head of the department.

Monplaisir is a lead researcher and director of the Product Development and Systems Engineering Consortium (PDSEC) at Wayne State. His research interests include: collaborative product design and development (CPDD), collaborative and distributed engineering and design, and modeling tools to support concurrency in product realization. He has authored more than 70 publications in these areas and funded research from NSF, Ford, Sun Microsystems, TARDEC, and PTC.

Monplaisir joined the industrial and manufacturing engineering faculty in 1996 from Florida A & M University where he was a visiting assistant professor. He earned his PhD in engineering management from the University of Missouri at Rolla, a master’s degree in computer integrated manufacturing from the University of Birmingham in Great Britain, and a bachelor’s degree in mechanical engineering from the University of the West Indies in Trinidad.

New Faculty

Satish Ketkar joined the engineering technology division faculty in winter 2009 as an associate professor.

He received his bachelor’s degree in 1982 in mechanical engineering from University of Pune, India, and master’s degree (1985) and PhD (1989) in mechanical engineering from the University of Tennessee, Knoxville, where he was a graduate teaching associate.

Associate Professor Ketkar has more than 20 years of experience in industry as a software engineer in the field of engineering simulations focused on thermal sciences. His areas of interest are thermal sciences, electronics cooling, alternate energy, and battery technology for HEV/PHEV/BEV vehicles.

His work experience includes: software specialist and a technical consultant for PDA Engineering and MSC Software Corporation, software companies where he developed thermal software tools such as PATRAN/Thermal and wrote engineering customization tools to improve engineering productivity; and software engineer for TES, an engineering consulting firm where he worked on electronics cooling software called ElectroFlo. He has also been consulting for Compact Power, makers of lithium-ion battery packs in the area of thermal management.

Wen Chen was a control systems engineer at Invensys, Webster, Texas, before joining the electrical and computer engineering faculty. He received his PhD in engineering science from Simon Fraser University in Vancouver, Canada. He holds a master’s degree in electrical and electronic engineering from Nanyang Technological University, Singapore (1999), and an equivalent of an associate degree in electrical automation engineering from Northeastern University, Shenyang, China.

Assistant Professor Chen was a postdoctoral researcher at University of Louisiana at Lafayette from 2005 to 2007, working on a NASA project on control and fault diagnosis of aircraft. Assistant Professor Chen’s research interests are in the areas of control systems, fault diagnostics and battery management systems, including learning control, adaptive control, fault detection and identification, and control and monitoring of battery packs. He resides in Troy.
Lloyd Cheney, 1917-2009

The College of Engineering laments the loss of Lloyd Cheney, who taught civil engineering at the college from 1948 to 1981. Cheney passed away July 17, 2009, at Providence Park Hospital in Novi after suffering a stroke. He was 91.

He is survived by three daughters, Anne Cheney, Marcia Cheney and Peggy Bogart, and predeceased by his wife, Lorraine. Cheney will be remembered at the college as a demanding teacher who enjoyed keeping in touch with his students. “He really cared about his students,” recalls his eldest daughter Anne. “He kept the grade books for all the years he taught.”

In his Detroit Free Press obituary, Marcia recalls, “While he loved teaching, he was demanding and had high expectations of his students — his justification being that you can’t make mistakes in engineering or else structures collapse.”

Anne adds that their dad had a true calling. “I would say it was to create a cadre of excellent civil engineers.”

Born in Buffalo, N.Y., the youngest of seven children, Cheney was the first in his family to receive a college degree. He graduated from Syracuse University in 1938 with a bachelor's degree in civil engineering. He received a master's degree in civil engineering from Lehigh University in Bethlehem, Pa., two years later.

After teaching briefly at Case Western Reserve University in Cleveland and Cornell University in Ithaca, N.Y., he arrived at what was then Wayne University in 1948.

He was active in many associations, including the Michigan Society of Professional Engineers, of which he was director; and the American Society of Civil Engineers, serving as president of the Michigan section and on the national board of directors. Additionally, he was a lifetime member of the Engineering Society of Detroit.

A funeral mass was held at the Church of the Holy Family in Farmington and internment took place at Mt. Calvary Cemetery in Buffalo, N.Y.

James Day, 1922-2009

The College of Engineering laments the loss of James Albert Day, longtime professor of engineering technology, who passed away Sept. 9, 2009. He was 87.

Day began teaching as a special instructor at the engineering drawing department in 1946. He was appointed assistant professor in 1953 and promoted to associate professor in 1957. Day joined the Engineering Technology Division in 1974, serving a total of 39 years.

Day was one of the early pioneers of the Engineering Technology Division and taught engineering drafting when it was required of all engineering students. He specialized in engineering graphics. In 1977, his colleagues nominated him for the President’s Award for Excellence in Teaching.

Day was born in Detroit on Jan. 4, 1922. He enlisted in the U.S. Navy during World War II. Day earned a bachelor’s degree in industrial education from Wayne University in 1946, and a master’s degree in education in 1954 from Wayne State.

He is survived by his wife of 63 years, Rose Marie. Day was a father of four (Carole Carroll, Marilyn Day, Timothy, and the late Michael) and he was a grandfather to six.

Services were held at St. Blase Catholic Church. He was buried at Resurrection Cemetery in Clinton Township.
Congratulations to the 17 engineering faculty and eight staff members recognized for their years of service to the university at the 2009 Employee Recognition Program:

Erhard Rothe, professor of chemical engineering, for 40 years of service; Randolph Szabla, lead electronic technician (40); Tapan Datta, professor of civil engineering (35); Dorothy Harris, secretary (30); Carol Miller, chair of civil engineering (25); Nabil Chalhoub, professor of mechanical engineering (20); Daniel Durisin, senior research engineer (20); Chin-An Tan, professor of mechanical engineering (20); Muntaz Usmen, interim dean (20); Yang Zhao, chair of electric and computer engineering (20); Victor Berdichevsky, professor of mechanical engineering (15); Rita Coyne, administrative assistant (15); Andrea Eisenberg, academic services officer (15); Richard Darin Ellis, associate professor of industrial and manufacturing engineering (15); Michele Grimm, associate dean (15); Janet Harris, administrative assistant (15); Howard Matthew, professor of mechanical engineering (15); Joseph Smolinski, assistant professor of electrical and computer engineering (15); Gerald Thompkins, associate dean (15); Keith Wadley, academic adviser (15); Jie Xu, senior lecturer (15); Scott Frump, director of business affairs (10); Changhe Huang, professor of electrical and computer engineering (10); Robert Kakos, engineering computer center director (10); and Abhilash Pandya, assistant professor of electrical and computer engineering (10).

Yinlun Huang, professor of chemical engineering, received a Michigan Green Chemistry Governor’s Award for his project: Integrated Hazardous Chemical-Metal Near-Zero Discharge Technology for Green and Profitable Design and Operation of Electroplating Processes. He received the award at a special ceremony at the Detroit Institute of Arts on Sept. 24, 2009.

Interim Dean Muntaz Usmen was appointed in January 2010 to serve on the Detroit Public School’s Bond Advisory and Fiscal Responsibility Committee for the district’s $500.5 million facilities program. The committee comprises parents, as well as political, industry, labor and community leaders, and assists DPS Emergency Financial Manager Robert Bobb in reviewing, on a regular basis, ongoing school construction and funding to ensure project goals, project budgets and project schedules are met.

John Cavanaugh and King Hay Yang, professors of biomedical engineering have been elected as fellows to the Society of Automotive Engineers. This membership grade recognizes and honors long-term members who have made a significant impact on society’s mobility technology through leadership, research, and innovation. Cavanaugh and Yang were formally honored for this distinction at the SAE World Congress, April 13 through 15, 2009, at Cobo Center in Detroit.

Caisheng Wang and Bryce Grevemeyer were winners of the Engineering Technology Excellence in Teaching Award at the 2009 College of Engineering Honors Convocation. The award, which is voted on by students, honors faculty whose excellence in academia is reflected in their teaching and unique contributions to education.

Advanced in Continuum Mechanics and Thermo-Dynamics, an international conference, in honor of Mechanical Engineering Professor Victor Berdichevsky’s 65th birthday, will take place from June 30 to July 2, at Ruhr University in Bochum, Germany. Berdichevsky is known in his field for his fundamental contributions to variational principles of mechanics, asymptotic methods, shell theory, the theory of turbulence and mechanics of materials.

Sport Science, the popular television series featuring WSU’s professor of biomedical engineering, Cynthia Bir, won two of the five Sports Emmys for which it was nominated last spring at Lincoln Center in New York City. The Sport Science team took home awards for Outstanding Graphic Design and Outstanding New Approaches and was nominated for Outstanding Edited Sports Series/Athology, Outstanding Technical Team Studio and Outstanding Production Design/Art Design. Sport Science was also nominated last year for four Sports Emmys and won for Outstanding Graphic Design.
Plugging “smart homes” into the electrical grid

How do you feed back power from an energy-generating green home into the traditional power grid? Caisheng Wang, assistant professor of electrical and computer engineering technology, is developing a strategy that manages new and old energy sources in one dynamic, integrated system that’s more efficient and reliable than current energy distribution. Wang has received a $311,334 grant from the National Science Foundation to develop a control strategy for using both traditional power plant-generated electricity and alternative energy distributed generation (AEDG) sources, including wind turbines, solar panels and fuel cells.

AEDG sources, which could be standard features of smart homes of the future, can generate power on their own for individual homes or as part of a larger network connected by a grid. If utilized efficiently, their integration into the larger power system could bring about vital improvements to the current power system.

A dynamic Internet Web site of all AET efforts at Michigan universities

One of the upsides of a downside economy has been closer cooperation and collaboration between researchers at Michigan’s universities. This is especially important in critical emerging fields such as alternative energy technology. At the urging of Gov. Jennifer Granholm, Michigan’s universities began a special project several years ago to build an Internet database of university experts working in alternative energy technology. Supported by a $23,000 state grant, Snehamay Khasnabis, professor of civil and environmental engineering, directed the creation of a WSU hub for the Web site, capturing the research, status, and other key information on all current alternative energy technology projects at the college. The entire project and Web site, which went online last June, is hosted and managed by NexEnergy of Michigan. The database is not only useful for researchers, but also for companies and entrepreneurs looking for university partners in this field. Visitors can find the site at www.aetnetwork.org

IME team to be part of $5 million VA resource center

Efficiency is the byword in healthcare today where it is estimated that 50 percent of activity at hospitals in the United States are wasteful. We all know about the cost of healthcare, so it goes without saying hospital systems can use industrial engineering principles that have proven very effective when applied in other fields. This is where four faculty researchers in the Department of Industrial and Manufacturing Engineering (IME) will help. Professors Kai Yang, Darin Ellis, Ratna Babu Chinam and Apler Murtal have been selected among strong competition from other universities by the Department of Veterans Affairs to join the effort in creating one of four funded “Veteran Engineering Resource Centers.” Each center is funded $5 million for two years. Thus far, IME received $800,000 for the center it is working with. Wayne State represents the largest group of researchers in the center comprised of a total of 12 faculty members from Wayne State, Indiana University, Purdue University, University of Michigan and University of Illinois at Urbana-Champaign. In a separate efficiency effort, the four IME faculty researchers have been awarded $750,000 from the Department of Veteran Affairs to work on multiple projects to “enhance capability” at the Detroit VA Medical Center in its administrative, inpatient and outpatient areas.

Video surveillance system catches crime when guard naps

Video surveillance is primarily used as a deterrent for theft and a forensic tool. Some large organizations have systems that detect suspicious activities as they occur, using multiple cameras producing many images that are observed at a central location by trained personnel. These systems are less than ideal, however, because they are subject to human error and typically cost millions of dollars. Supported by a $290,000 NSF grant, Nabir Sarhan, assistant professor of electrical and computer engineering, is developing a security system that performs computer-automated, real-time threat detection at a lower cost and with greater coverage than today’s security systems. “The problem with having people monitor large numbers of screens all at once is that humans are unable to pay close attention to multiple events that happen at the same time,” Sarhan says. “A computer system, on the other hand, can efficiently process a large number of surveillance videos simultaneously, without getting tired, bored or losing focus.”

Everything you ever wanted to know about “cloud computing”

Cloud computing is anything but dreamy unless you have dreams of vacationing in Hawaii from the money you save. Usually it’s a large corporation saving the money by subscribing to a cloud provider with large-scale networks and data centers that offers information technology services. “Cloud computing is a pool of abstracted, highly scalable, and managed computing infrastructure capable of hosting end-user customer applications and billed by consumption,” says Song Jiang, assistant professor of computer and electrical engineering. Actually, Jiang was quoting a consultant on business and technology strategies who has a way with words. What Jiang and his group are really good at is researching cloud computing. Supported with a $140,000 National Science Foundation grant, his group is studying how to allow users to easily specify their performance requirements on the applications to run in the cloud and allow providers to efficiently meet the requirements by intelligent resource scheduling. One wonders what Jiang would be doing if the computer was never invented.
Creating an electric-drive vehicle engineering program
An inside perspective of the people and events leading to Wayne State's role in supporting an auto industry in transition
by David Reich, College of Engineering Public Affairs Officer

On the morning of Aug. 5, 2009, Simon Ng, professor of chemical and materials engineering, sat in a row of folding chairs in a crowd of several hundred people waiting for an important announcement from U.S. Vice President Joe Biden.

The announcement made at NextEnergy in Detroit’s Techtown of an infusion of $2.4 billion in federal money for electric-drive vehicle development was big news for Michigan’s flagging auto industry challenged to re-invent itself. Nearly a billion dollars in batteries for hybrid and electric vehicle batteries in May of 2008. In January of this year, Corrigan was appointed to the research faculty to participate in curriculum development and to create an advanced battery research lab to complement lectures courses and provide opportunities for graduate research as part of the education process.

Corrigan moved into an empty office in the chemical engineering faculty wing occupied previously by the late James McMicking, former professor of chemical engineering. Corrigan’s rich understanding of vehicle battery technology comes from 12 years of R&D at GM Research Labs and 16 years of experience as researcher and top executive with Energy Conversion Devices (EDC) of Rochester Hills. Energy Conversion Devices is an aggressive and innovative company that provided opportunities for graduate research vital to the industry. The college grew originally from a chemical engineering department, a foundation that continued to advance and stand out, particularly in materials and nanotechnology.

Wayne State's location at the center of the auto industry has always fueled a solid and practical automotive engineering curriculum and research vital to the industry. The college grew originally from a chemical engineering department, a foundation that continued to advance and stand out, particularly in materials and nanotechnology. Chemistry, chemical engineering, materials engineering, nanotechnology, and applied physics are all fundamental research areas critical to developing batteries, fuel cells, and many other pieces of the electric drive vehicle engineering puzzle.

And there was also the hand of Ralph Kummler, the former dean of the college who adeptly worked the backchannels with his knack for finding opportunities in ways that will never be fully disclosed. Kummler eyed battery expert Dennis Corrigan early on to help Ng develop the new curriculum, say long time colleagues.

Ng brought Corrigan aboard as an adjunct professor to teach a new graduate course on hybrid and electric vehicle batteries and to create an advanced battery research lab to complement lectures courses and provide opportunities for graduate research as part of the education process.

The $5 million DOE grant was the most awarded to any Michigan university and second largest to any university as “a heck of a lot of money for a curriculum development” as one faculty member describes it.

Interim Dean Mumtaz Usmen likes to call the seemingly serendipitous events leading to this development a perfect storm. “The industry is in transition; its people are in transition; and our curriculum is in transition,” he says. “All these things are moving in parallel to provide an opportunity to bring on outstanding individuals to contribute to vital education at the college.”

While Wayne State appears to have been in the right place at the right time, it is no fluke. In fact, it was a series of people and events, including global warming, the economic crisis, and surprisingly, former Gov. John Engler, that came into play.

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John Engler more than a decade ago, had created by former Michigan Governor the Michigan alternative energy incubator would have come to be if NextEnergy, One wonders if the Wayne State AET program for the EVE degree programs to follow. 

Jerry Ku, of the new program, the first in the United States and said to myself, 'Okay, what can we do in renewable energy to improve the environment, especially in Michigan?'

Previously, Ng had applied his expertise in catalysis process to crude oil. But after Singapore he began looking at vegetable oil and animal fat to make biodiesel. Fast-forward to January 2006, when NextEnergy anoints Ng and his team of research faculty and graduate students to form the National Biofuels Energy Lab, funded by a $4 million DOE grant, with the goal of finding and standardizing a B-20 biodiesel formulation consisting of 20 percent biodiesel fuel derived from vegetable oil and grease and 80 percent diesel. Regarding the dawn of EVE, Ng says, "Two years ago, we saw another transition and parallel development, another facet of AET in electric-drive vehicle and hybrid vehicles, as a potential for education and a research area. So when the DOE presented the grant opportunity, we jumped on it. It was an opportunity based on experience and knowledge we developed with the AET program."

Electric vehicles enjoyed popularity between the mid-19th Century and the early 20th Century. The low energy density and high cost of batteries have long been considered the chief obstacle to the commercialization of electric drive vehicles required to match the range of gasoline powered cars. The industry has always assumed the consumer would not accept any less power range and accessories they had become accustomed to with the pre-eminence of the internal combustion engine.

But advances in the last two decades have produced high-power nickel metal hydride batteries leading to commercial hybrid electric vehicles and high-energy lithium ion batteries now capable of powering electric vehicles for hundreds of miles. "Further battery advances will help expand the role of hybrid vehicles to a very substantial market share in a few years," says Corrigan. "We may also see significant commercial introduction of pure battery electric vehicles."

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For a long time, Ng’s research has focused on petroleum. “I graduated from high school in the early 1970s just after the oil crisis,” he says. That’s the 1973 Oil Crisis, when the members of the Organization of Arab Exporting Countries (OAPEC) proclaimed an oil embargo. But Ng changed his thinking in 2000 on his sabbatical in Singapore. “That’s when I got very interested in the general idea of renewable energy. It is very hot in Singapore, and they are much more focused on solar energy. So I came back to the United States and said to myself, ‘Okay, what can we do in renewable energy to improve the environment, especially in Michigan?’

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While the industry moves in the direction of Sanyo that Ford selected for all of its HEVs, arguably the most successful power-assist cells and packs, including the prismatic design the group became the Hybrid Powertrain he worked on the EV 1. After several years, Liao left Ford in 1994 to join GM's Advanced vehicle that never saw commercial production. for the Ford Mach A, a prototype hybrid the Ford Motor Co. as a member of the hybrid prototypes. His first engineering job was at the Ford Motor Co. as a member of the hybrid powertrain group. He worked on the engine for the Ford Mach A, a prototype hybrid vehicle that never saw commercial production. Liao left Ford in 1994 to join GM's Advanced Technology Vehicle Group in Pontiac where he worked on the EV 1. After several years, the group became the Hybrid Powertrain Group. It was at that time, from 1996 to 2001, Liao worked on several HEV prototypes.

Liao is familiar with many types of battery cells and packs, including the prismatic design developed by Panasonic for the Toyota Prius, arguably the most successful power-assist HEV on the road, as well as the less expensive and inferior cylindrical design developed by Sanyo that Ford selected for all of its HEVs.

While the industry moves in the direction of electric drive vehicles, there are still far more questions than answers. Where does the personal vehicle have in a society moving toward sustainability? How will that vehicle ultimately be powered? What commercial stages will that vehicle go through to carry us over the years (perhaps 12 to 15, experts say) to the ultimate design? It can be a bit daunting for technology educators such as Liao to instruct students in electric drive vehicle technology. They could be working in industry with any one of a plethora of different designs and types of HEVs and all-electric vehicles manufacturers are currently producing. At the fundamental design level, students must first ponder the question “How do you combine the engine, transmission and electric motor?” Liao says. “Where do you put the motor?” The expounding number of options can be baffling.

As an academic and an instructor, Liao likes to begin with the known factors. To help his students focus, he’s come up with an elegant and simple formula. Taking a pencil in hand, he writes on a notepad four integers, the known factors, in four rows:

<table>
<thead>
<tr>
<th>&quot;HEV&quot; (hybrid electric vehicle)</th>
<th>&quot;PHEV&quot; (plug-in hybrid electric vehicle)</th>
<th>&quot;BEV&quot; (battery electric vehicle)</th>
<th>&quot;FCEV&quot; (fuel cell electric vehicle)</th>
</tr>
</thead>
</table>

There is one common factor in all four types of vehicles, he notes. He circles the “EV” in all four integers. The unknown factor is “X.” He calls his equation “KEV.”

“Everything is 6,” electric drive,” he says. “The motor, battery and power electronics. Hybrid vehicles present medium term solutions. Ideally, we want a single energy source inside the vehicle. If you have a single energy source, then development, design and maintenance is simple. But when you go to hybrid, then it gets complicated.”

After the first hybrid electric vehicle systems courses debuted at WSU and Macomb from 2005 to 2008, the world has been knocking loudly on Engineering Technology’s doors, says Yeh. “We have a lot of things going on right now.”

Courses in HEV technology offered by ET in the fall of 2009 to industry engineers filled as soon as the courses were announced, triggering long waiting lists. Short courses offered in March in HEV technology for Ford engineering and non-engineering personnel swelled quickly with 500 registrants, spilling over into a waiting list of another 600.

Early in April, NSF officials met with Yeh, Abbas Nazri, a research scientist with GM’s Electro-Chemical Storage Lab. Nazri, who has spent his entire 26-year career with the GM Lab, helped develop the power storage technology for electric-based transportation, including the Chevy Volt, the much ballyhooed plug-in hybrid electric vehicle expected to range 40 miles on a single charge before its tandem gasoline engine kicks in. Lithium ion batteries, the same type that power laptops, provide the power and energy for the Volt. When it rolls off the assembly line this fall, the Volt will be the first mass-produced automobile powered by lithium ion.

“I believe Wayne State can be a significant player in training the new workforce in various areas related to electric-based transportation,” says Nazri, who understands better than anyone the extent to which advance materials, design and production areas are needed for the transition. Nazri may teach courses in energy storage and generation as early as this May, although the degree programs do not officially begin until the fall semester after the expected formal approval of the program by the WSU Board of Governors.

Nazri’s appointment, as that of the other new adjunct faculty, is also a reminder that while they come to teach, their expertise adds deeply to a collaborative culture that enhances R&D. That R&D effort will focus on lithium ion battery development, says Ng. The effort will be housed in the current Alternative Energy Technology Lab, in the Engineering Development Center, alongside research activities in renewable transportation fuel.

Ming Chia Lai and MCC people at Macomb Community College for a “site visit” (a very positive sign) to discuss Wayne State’s submission for a three-year $3 million grant to build an Advanced Vehicle Technology Regional Center housed at MCC and managed at WSU. Wayne State would offer courses at ET, provide materials to MCC, and help them set up a lab. Bill Stack, director of the MCC Center for Alternative Fuels, says the deal is “99 percent” approved. If not, other lucrative funded endeavors are in the works.

One of the extraordinary individuals Dennis Corrigan attracted to Wayne State is Gholam Abbas Nazri, a research scientist with GM’s Electro-Chemical Storage Lab. Nazri, who has spent his entire 26-year career with the GM Lab, helped develop the power storage technology for electric-based transportation, including the Chevy Volt, the much ballyhooed plug-in hybrid electric vehicle expected to range 40 miles on a single charge before its tandem gasoline engine kicks in. Lithium ion batteries, the same type that power laptops, provide the power and energy for the Volt. When it rolls off the assembly line this fall, the Volt will be the first mass-produced automobile powered by lithium ion.

“We already have several faculty members - Sean Wu and Jerry Ku – doing it.”
The national Society of Women Engineers (SWE) was founded in 1950, five years after the end of World War II. Troy Eller, the SWE archivist at Wayne State University's Walter P. Reuther Library, is the go-to person for all things related to SWE's history. She says there were 20 women engineering students who helped form a Wayne State University section, separate from that of Detroit's, on June 28, 1974.

Kelly Foster is the president of Wayne State's SWE chapter today. The mechanical engineering senior is carrying on tradition by laying the groundwork for the next generation. She is well aware of the countless women who worked for equality and made it easier for young women, such as herself, to have a fighting chance.

Some people may not think SWE is relevant today. But Foster says SWE continues to make a difference in the community, picking up where the group's founders left off.

“There are plenty of women who’ve shown through example what it means to be a female engineer,” she says. “Those who have paved the road for female engineering students today have created an environment where females can feel comfortable in what used to be a male-dominated environment. We still have obstacles to overcome. But female engineers still have the passion that we had 59 years ago when SWE started.”

Eller, 27, who has a master's degree from Wayne State in library and information science, says that while women engineers do not face the same level of hiring and on-the-job discrimination as they did years ago, inequality still exists. Discrimination remains in schools where young girls are discouraged from studying math and science.

“And I think there are still issues such as work-life balance that SWE benefits not only women, but men,” says Eller, “where SWE and SWE members work with companies to work on child care and family/elder care issues. Those are tasks frequently done by women, and sometimes men.”

Foster agrees. “The purpose of the organization is to provide support and resources to females pursuing a degree in engineering, math or science. SWE also provides outreach events and encouragement to younger girls interested in engineering… as well as supporting women engineers in every stage of their professional and personal lives.”

To know how far women engineers have come, you must know what they’ve been through, Eller says. Before WWII, there were very few women engineers. Women who wanted to be engineers had “trouble finding a college that would actually let them study engineering,” she says. “Many colleges were closed to women, and those that did admit women frequently discouraged or forbade them from engineering programs.”

As many men traded factory jobs for combat boots during the war, women stepped up. “The ‘manpower’ shortage created by the second world war led companies to hire many more women to work as technical and engineering aides,” Eller says.

Job openings in turn became the key to education. Fast-forward to today, and you can see the change all across America. In 2009, Wayne State's College of Engineering ranked 14 among 259 engineering schools in the nation in its percentage of women (30 percent) graduating with a bachelor's degree, according to a 2009 survey by the American Society for Engineering Education's (ASEE) Prism Magazine.

Eller says SWE has contributed a lot to women and the labor movement since the national organization was founded. “It gave them a chance to get to know each other and share their stories. One of the benefits members have found in SWE, particularly from 1950 to 1980, was that early on, some employers absolutely refused to hire women. So when a woman engineer found an employer who did, they would tell their friends. It was through that networking that women would discover which employers would even look at them.”

SWE continues to open doors after all these years. Foster, 21, has risen to the top of the SWE-WSU ranks while at college. “SWE is a very important organization to me,” the second-year president says. “I have been involved in it for about four years now. Through SWE, I have received many internship/ job opportunities, scholarship opportunities and many lifelong friendships. The connections I have made through SWE with other female engineers around the country have been invaluable.”

Foster believes balancing work and school will pay off in the long run. “The technical skills I have learned through my engineering courses and the soft skills that I have learned through my involvement in SWE have definitely prepared me for the workforce,” she says. Officers of the group meet monthly to discuss future plans, including increasing their membership.

There are currently 20 members. The organization welcomes any WSU student, male or female, studying engineering, engineering technology, computer science, or math and science-related fields.

SWE-WSU is rightly proud of their new outreach program for high school students called, “Future SWE!” Last year, SWE-WSU hosted the first annual event for approximately 40 high school girls at the new Marvin I. Danto Engineering Development Center “for a day filled with information and activities to encourage them to consider engineering as a career,” Foster says.

“The one thing younger girls have to understand is that engineering isn’t just for those who love math and science. If you are creative and have the drive to make the world a better place, then you have the passion it takes to be an engineer. You don’t have to love math and science – you just have to be able to do it.”

Eller says Future SWE is the next big step. “I think that it really helps to have college-aged students talk to high school and middle school students,” she says. “I think they can better relate to younger students by having a SWE chapter at WSU that helps students get involved in science and math at an early age.”

- Derrick Bean

Kelly Foster (right) with 2009-2010 SWE members - Photo by Eric Eggly

Foster and Troy Eller - Photo by Amanda Rodriguez

Founding members of the national SWE, 1950. Photo courtesy of the Walter P. Reuther Library Archives.

Kelly Foster (left) with 2009-2010 SWE members - Photo by Eric Eggly

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49 | exemplar
Students seek jobs in a tough economy at Career Fair

Engineering senior Karmell Wisdom, sophomore Miroslav Dimovski and freshman Gwen Dolyn Morgan were among hundreds of optimistic job candidates seeking employment in the tough economy at the 2009 Engineering and Computer Science Job Fair last October.

Each student had a different experience, but they all remained hopeful despite the hard-hit economy.

There were 29 company reps recruiting students for part-time, full-time, seasonal, co-op and internship positions. For graduating students, 22 employers offered full-time jobs. The number of open positions varied within each company.

Among the big names were Ford Motor Co., DTE Energy, and the CIA. The former was the last to close up shop. In past years, engineering and computer science each held their own job fair, but Diane Grimord, university counselor at the College of Education, said employers didn’t want to go to both because the two fields often overlap in positions within different companies.

Wisdom is a senior with a major in engineering technology and a focus in product design. She spent most of last year working with BAE Systems (which was represented at the event) before being laid off from her part-time position. Prior to that, Wisdom interned three summers at Procter & Gamble and another summer at Whirlpool.

Morgan, a first-year mechanical engineering major, hasn’t decided yet what kind of job she wants, but is interested in doing “something in design,” she said. “I am very interested in how they design things. I’ve always been interested in how things work. As a kid, I always took things apart and put them together.”

She hoped to get an internship. “I just want to get a feel of what I want to go into.”

Dimovski, a sophomore in civil engineering, said he attended the Job Fair so he could plant all his seeds. “I’m pretty much just trying to hit all the civil engineering people,” he said while waiting in line at the Urban Science, Inc. booth.

Dimovski wanted an internship in order to gain “good experience and help me open some doors when I graduate.” He said only a couple higher-level companies told him he needed more experience, but that he didn’t mind. “It’s understandable. Of course, you’re going to want someone with more experience.”

Morgan was given the cold shoulder by a couple of companies as well. “I was expecting that because I’m only a freshman,” said a still-confident Morgan after being turned away for a lack of experience. “I’m just trying to be on top of my game.”

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Carr said NTH was looking for interns and co-op students, including several part-time and 12 full-time interns. “I look for sincere interest in the field,” he said. “Their attitude … having a zest for what they’re going into. Even a freshman can go far with a can-do attitude.”

Gerald Thompkins, associate dean for student affairs and job fair organizer, said students need to be prepared to do whatever it takes to make it in the real world. “My advice to graduating seniors is to be flexible in their career pursuits, and also be prepared to relocate to perhaps a different city and even a different state.” Thompkins also suggests students be diverse in their job search targets. “Graduating engineers must realize that even with their engineering degrees, they need to look beyond the automotive industry for career opportunities.”

Wisdom said she was disappointed some companies weren’t recruiting on the spot, but asking instead for students to go online and apply. It wasn’t all bad, though. Gentex Corporation was “pretty impressive,” said Wisdom after seeing their attractive display and learning about the company of which she was previously unfamiliar.

Wisdom could tell something was different this year when she saw there was only one floor of company reps as opposed to the two floors of companies who showed up in 2008.

Thompkins said the sluggish market is the reason there were fewer vendors in 2009. “The economy has played a major role in companies and their recruiting objectives,” he said of those corporations that chose to stay away. “Instead of doing career fairs, this is a way for them to save revenue and other associated costs.”

Thompkins said there have been between 45 and 50 companies on average (with a high of nearly 60) at previous job fairs. That number has been cut in half, with only one major automobile manufacturer represented this year.

Ford Motor Co. reps were happy to be in a position to still recruit, especially from Wayne State. “One of the things about Wayne State is the quality of students we see each year,” said Benny Wong, lead engineering recruiter at Ford at his seventh job fair. “There’s no drop-off. The quality is equal – fine students each year.”

- Derrick Bean

All photos by Alonso del Arte
Can entrepreneurs change the world and make it a better place? Wayne State University alumnus and Detroit businessman Jim Anderson, BSCE’67, MSCE’70, thinks so. His belief in the entrepreneurial spirit, in his alma mater, and in the city of Detroit translated to a challenge he made to the College of Engineering in 2004 to develop an engineering ventures initiative, donating $1 million to that end. He then helped shepherd a Wayne State chapter of the Collegiate Entrepreneurs’ Organization (CEO), a national student group that empowers students and helps invigorate Detroit’s economic spirit.

Melissa Labell, the president of CEO for fall 2009, says the organization promotes entrepreneurship and inspires college students. “It is based out of the college, but it is open for the entire campus,” she says. “It provides workshops, networking, events, conferences, and guest speakers.”

Labell is a senior at WSU studying industrial and manufacturing engineering. She met Anderson her freshman year at an Engineering Student Faculty Board meeting and was subsequently exposed to other career options aside from the traditional engineering path. CEO has afforded Labell networking opportunities, internships, scholarships, and “getting my foot in anything I want to do,” says Labell. “I have the ability to make a change in the world and help others.”

Former CEO president Lavie Golenberg, MSME’06, who stepped down to concentrate on his PhD in industrial engineering, is also a believer. “The mentorship was the best thing about CEO. You learn to think in a different way. It’s a learn-by-example type of opportunity. By the time you’re done, you’re ready to start something. You have that drive. I enjoy leading decision-making. I love the challenge of it.”

Golenberg and fellow member Louis Mailloux are trying to make a change by working with the Detroit Medical Center (DMC) and the Rehabilitation Institute of Michigan (RIM). Golenberg and Mailloux hope that their startup company can improve medical technology and materials, while empowering people with physical and mental challenges. “The idea is to create enabling technology, making it easier for people who have a disability to complete everyday tasks,” says Golenberg. The plan begins with a problem statement (e.g., someone has trouble getting up or sitting down). The next step is to “produce and market a product solution.” Finally, if all goes well with marketing and mass production, the product will “hopefully benefit a lot of people,” says Golenberg.

Labell is currently focused on her work with Tucker, Young, Jackson, Tull, Inc (TYJT), an engineering consulting firm headquartered in Detroit. “I like being my own boss, making my own decisions,” Labell says with confidence. She credits her “can-do attitude” to hanging around Anderson.

He elaborated, “Many people in life don’t attempt to do things because they think they can’t do it. The can-do attitude is that whatever challenge we’re presented with, we’ll figure out a way to make it work.” Anderson is the founder and president of Detroit-based Urban Science. “I started my business with $3,000. Today, it’s a $100 million company with 500 employees.”

Urban Science began in 1977 when Anderson was a graduate student at WSU and was working with Cadillac Motor Car to design and produce dot maps on a computer to help locate potential customers and determine dealer locations. “I learned the hard way about doing things you shouldn’t do,” he says. “CEO is a mechanism to help students get further than I did, learn about starting a business, and running a business.” Anderson credits WSU for giving him the opportunity to be successful. “Wayne State has been very good for me. If it hadn’t been for the education I got at Wayne State, I wouldn’t be doing what I’m doing.”

Alumna Nancy Philippart, BSIE’80, is executive-in-residence of the Engineering Ventures Program, of which CEO is a major component. She says the focus is to give students exposure to entrepreneurship and entrepreneurial opportunities. “I very much believe in this initiative of helping students in a formal and an informal way…helping students become entrepreneurs. Potentially, this can become a business is another. In the end, students involved in Engineering Entrepreneurship will receive a certificate, possess knowledge from non-technical classes, and “cultivate can-do attitudes,” says Anderson.

Anderson says the Engineering Entrepreneurship certificate will offer classes that don’t fit into the traditional engineering curriculum such as accounting, finance, human resources and legal courses. Mentoring is a major component. Learning how to drum up money to build a business is another. In the end, students involved in Engineering Entrepreneurship will receive a certificate, possess knowledge from non-technical classes, and “cultivate can-do attitudes,” says Anderson.

“We would like to increase the membership in CEO dramatically. I want them to be more successful than I’ve been, helping me to continue to build this organization of graduates, and rebuild of Detroit’s economy,” says Anderson. “When you enjoy fulfilling your destiny and things are working for you, then work is a lot of fun.”

- Derrick Bean

Derrick Bean

You don’t need to be rich. You don’t need to have access to a lot of money to become an entrepreneur with a successful business,” he says.

Entrepreneurship, developing, or helping to train future entrepreneurs is a hot topic. We need to diversify. We can’t count on the auto industry for jobs in the area any longer,” says Philippart, who also has a master’s degree in economics from WSU. “Entrepreneurship and individuals starting companies will account for growth more so than some of the big companies.”

Philippart’s executive-in-residence job requires her to be a faculty adviser for the student CEO chapter and to develop partnerships with startup companies. She is also collaborating with various other colleges at Wayne State to develop coursework for a full-fledged Engineering Entrepreneurial certificate program. She is also helping grow CEO at Wayne State into a larger, more active organization. And finally, Philippart is developing networks to place students as interns in startup companies and procuring funding to support this effort.

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Features II

Engineering ethics class prepares students for a lifetime

The reason for engineering ethics is obvious: “People,” says Mumtaz Usmen, interim dean of the College of Engineering.

Usmen, who teaches engineering ethics at the college, says ethics is an approach to engineering practice that is hopefully planted early in engineering school, and carried throughout one’s career.

“My hope is that since we teach and dwell on the issue of ethics that it will make a difference,” he says. The first step for any engineer and for students to understand, says Usmen, is that one should never compromise the safety, health, and welfare of the public.

Usmen is interim dean of the college, the former chair of the Department of Civil and Environmental Engineering, a member on the Board of Ethical Review for The National Society of Professional Engineers (NSPE), and holds workshops on engineering ethics in this country and abroad.

The Accreditation Board of Engineering and Technology (ABET) mandates coverage of ethics as part of the engineering curriculum. At the college, undergraduate students are required to take one ethics education course (Philosophy 1120: Professional Ethics) designed to set them on the right course to practice its principles on the job.

Usmen says his graduate-level professional ethics course exposes students to “theories on what constitutes positive or negative practices. We don’t stop at just ethics. It’s not just one class and done. We talk about current events, discuss real-life cases and the correct ways to handle them.”

Usmen says he hopes that his students take ethics seriously. “Several of my students have expressed their concern about unethical practices they’ve observed in the workplace in relation to their employers and with other companies they deal with. Several of these cases involve falsification of documents and misrepresentation of facts about the company or the project.”

There is a breach of ethics in the world, says Usmen. “You see a lot of conduct that bothers you where the engineering profession is practiced from labs to construction. People might favor a company at the expense of creating possible risks. Then, the issue in the student becomes environmental. You are expected to be all the way truthful in public statements. Because you have a degree and a license, the public develops this comfort that they’re in good hands. If an engineer says something is safe, the public will believe that.”

There are unlimited opportunities in the engineering profession when projects and personal integrity can be compromised for money, personal gain or pressures to succeed. A hasty decision to meet a deadline may lead to death. Other examples of breached ethics include lax environmental controls, corruption and misrepresentation of professional credentials.

Several decades ago, the collapse of the then-three-year-old Kansas City Hyatt Regency Atrium — which resulted in the deaths of 114 people — was a hard blow to people’s trust in professional engineers designing structures. Investigators eventually determined that the atrium design, which had been modified from the original, supported only 60 percent of the minimum load required by Kansas City building codes.

Continued on page 88

Grad students conduct seat belt usage survey

A group of Wayne State University civil engineering graduate students is watching to see if you use your car seat belt. And they like what they see.

Wayne State’s Transportation Research Group (TRG) observes seat belt usage throughout Michigan to determine the statewide seat belt use rate as part of an annual research project sponsored by the Michigan Office of Highway Safety Planning (OHSP).

In 2008, the group’s report contributed to the determination by the National Highway Traffic Safety Administration (NHTSA) that Michigan had the highest seat belt usage rate (97.2 percent) among the 50 states. The 2009 survey revealed a further increase in belt use to 97.9 percent, a Michigan record. The national seat belt use rate in 2008 was found to be 83 percent, according to NHTSA.

The use of seat belts is the single most effective means of reducing fatal and non-fatal injuries in vehicular crashes, according to TRG. Seat belts can reduce the risk of serious injury or death by nearly 50 percent.

Each year, TRG participates in the survey conducted throughout the state. In 2009, the state contracted with TRG to cover all 85 counties in the state.

The survey takes place in accordance with the National Safety Campaign, which runs from August to the first week in September, a time when there is an increase in traffic leading up to Labor Day. It also directly precedes the Drive Safely to WSU campaign, held annually on the Wayne State campus at the end of September.

Graduate students Dan Cook and Shahinul Haque are one pair, among more than 14 students involved in taking the survey, who are working to make a difference beyond numbers and statistics. All survey takers are trained through a rigorous classroom and field-based training program conducted by TRG director and Civil and Environmental Engineering Professor Tapan Datta, and his colleague, Assistant Professor Peter Savolainen.

Haque says he believes they are doing their part to make people safer. “We are doing something good for human beings. That is a good feeling for me.” Cook agrees. “Every once in a while, someone (being surveyed) will ask me what I’m doing, and they’ll buckle up.”

The observational studies are conducted at randomly selected intersections. The survey team must record their observations covertly so as not to bias the data. Motorists who buckle up only after noticing the presence of the students with clipboards are recorded as “unbelted.”

“Basically, you need to see the vehicle clearly once it’s stopped,” says Cook. It sounds simple, but in addition to determining restraint use (“belted”, “not belted”, “belt behind the back”, “belt under arm”), the students are charged with determining the age, gender, and race of each driver and front seat passenger.

The efforts by TRG together with state of Michigan campaigns such as “Buckle Up or Pay Up, Click It or Ticket” have contributed to Michigan’s high safety use rate and a related decline in traffic fatalities.

- Derrick Bean
In 1989, sculptor Bruce White, then a professor at Northern Illinois University School of Art, created what has become the symbol of the College of Engineering with a sculpture named “Helios Trail.”

White, 76, says the sculpture and its title were inspired by Greek mythology: “I was trying to do something that expressed the mission of the college...something going for the future. And, you know, the myth of the Helios leaving a trail – the sun god left a trail of light across the sky. I wanted something shooting into space, which seemed perfect, space age.”

The sculpture was installed on Sept. 22, 1989. It was intended to express the spirit of the college, and it looks livelier than ever in its new location. The 40-foot tall stainless steel monument was removed from its base in the engineering courtyard. Upon completion, it was lifted onto a flatbed truck, carried to Detroit, lifted across the building and planted by a large crane onto its base in the engineering courtyard.

White likens the process behind his creation to that of an engineering student bringing a new design to life. “Much like any engineering project, it started with an idea and a sketch. But, of course, you have to make changes to make sure that it’s feasible to build and within the budget,” White says without revealing his commission for the project.

His intentions are to make people connect with his sculptures. “A lot of my art is emotion,” says White. “You feel the idea through the form. The sculpture expresses shooting into space, reaching for the sky.”

The courtyard has been downsized but the sculpture is back with all of its symbolism intact. It has inspired the logo on every official document or material relating to the College of Engineering for much of the past 20 years.

“Helios Trail: still a trailblazer 20 years later: Bruce White, the sculptor behind Helios Trail, reflects on his work

“IT’S very exciting when an idea takes form – a visual signature rather than a written signature,” says White. “It becomes a symbol of an idea...a unique expression.”

During his 20-year tenure as a professor at Northern Illinois University, White was more than happy to share his experiences. “If students were interested, I would hire them to work for me,” he says. “Many of them have gone on to make a name for themselves, and now they’re my colleagues – my competition.”

About eight years ago, White traded in his teaching responsibilities for more time to concentrate on his sculpture. White says retirement is not on his radar: “I just keep working. Right now, I’m working on a piece for Miami, Fla. I’m in very good health. I’m going to keep going until I can’t anymore physically. Many great artists worked until they couldn’t do it any longer physically.”

Several years ago while on vacation, Brian Geraghty, MSME’72, noticed that a 2002 White sculpture named “Fire Monument” in Jacksonville, Fla. bore a striking resemblance to the Helios Trail. Both sculptures are metal, spear-like in form with three sides, leaning toward the sky, and gradually taper to a point at its apex.

When asked about the two similar looking pieces, White says he wouldn’t re-create any piece. In both of these cases, he chose to put the sculptures on an angle as opposed to a typical straight-up-and-down piece, he says. “I like the upward lean idea, which gives them both a kind of energy,” he adds. “I just like that effect instead of a static vertical look – like a body in action.”

In ‘Helios,’ the jagged edge continues the full length, diminishing upward like the trail a modern jet leaves in the sky. In the Jacksonville ‘Monument,’ the jagged edges surround the lower portion of the primary form which then appears to break through and shoot upward, indicating the emergence of the new city rising from the ashes of the old.”

White’s body of work is quite extensive and varied. He says he does not have a favorite among his many sculptures (nearly 60 of which are featured on his Web site: www.brucewhitesculpture.com). “I don’t really rank them. I never think in those terms. I never think that one is my favorite. I just look forward to the next challenge and hope to surprise myself.”

- Derrick Bean
Reflections

Bud Mertz remembers

Harold "Bud" Mertz, BSAero’61, MSEM’63, PhDEM’67, a pioneer in automotive safety research, first came to Wayne State in 1956 as a freshman in the aeronautical engineering program. He has worked on all aspects of automotive safety restraint systems, including design, performance and test specifications, data analyses and regulations. He conducted research programs at Wayne State and Southwest Research Institute to determine child and adult tolerances to interactions with deploying airbags.

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He held a number of significant positions at Wayne State University. He was a professor of engineering mechanics, began his engineering career at Wayne State, and became a professor of engineering mechanics.

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Charles Clayton Perry, professor of engineering mechanics, inspired his students with his great enthusiasm and dedication to the practice of engineering, according to Bob Byrum and Jack Walrad, both 1958 graduates in engineering mechanics. "The Perry we knew in our own words was a professional engineer and teacher, and amateur scientist," says Walrad.

Perry died on Oct. 21, 2008, but his legacy among his students carries on. Widely known for his work and publications in experimental stress analysis, Perry had his hand in many areas, including biomechanical experiments carried on with his colleague and department chair, Herbert Lissner. But the most intriguing venture Perry embarked on was the development of Detroit’s first nuclear reactor.

He was a real engineer. Before joining the college faculty, he was an engineer in charge of research with Vickers, Inc. Following his time at Wayne State, he was vice president of W.M. Chace Co., and an engineer with Vishay Measurements Group, Inc., a subsidiary of Vishay Intertechnology, Inc. He left Vishay in 1984 to go into private consulting.

Byrum says he is impressed with how the college has grown and evolved into the standing it holds today, especially in research and development. "But many people don’t realize what great standing it held back then. Professor Perry was only one of many talented and hardworking faculty contributing to the college’s overall stature."

Walrad points out that Perry was a “real ambassador for WSU, proud of the College of Engineering, his faculty colleagues, and the profession.”

- David Reich

John Walrad (left) and Bob Byrum — Photo by David Reich

Bud’s favorite things at WSU: socializing with aeronautical and civil engineering students at the Aero Drafting Room, conducting tests at the Impact Labs in the Engineering Building, socializing with engineering mechanics graduate students in the EM Grad Student Office on Putnam, doing homework and preparing lectures on the first floor of the Kresge Library, playing handball, racquetball and basketball in the Matthaei P.E. Center.

After receiving my PhD in 1967, I remained at Wayne State as an assistant professor of engineering mechanics for two years.

In 1969, I bought my house in Harper Woods and moved in June. Our first child, Julie, was born on July 20, the day my first stepped on the moon. I left Wayne at the end of September and started working at GM Research Labs. I worked for GM for 36 years and retired in May 2005. My work for GM was in auto safety research and engineering. I held several management and engineering positions. In May 1981, I became a GM Technical Fellow, which is the position I held until my retirement.

As a teacher, he was an excellent role model, say Byrum and Walrad. “He was superb in class, a great chalkboard lecturer, enthusiastic, energetic and lucid, determined to reach every member of the class,” says Walrad. He was “accessible, responsive, happy to discuss student projects, and anything related to engineering or issues of interest from his university committee assignments.”

With his industry connections, Perry helped set up his students for their first jobs after graduation.

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John Walrad (left) and Bob Byrum — Photo by David Reich

Reflections
Reflections

Back when John Walrad, BSME ’58, and Robert Byrum, BSME ’58, were students at Wayne State University, their engineering mechanics professor, Charles Perry, was busy pushing the horizon at the College of Engineering.

Perry, who passed away on Oct. 21, 2008, produced the first nuclear reactor in Detroit more than 50 years ago. The former WSU professor of engineering mechanics referred to his creation as a “pickle barrel” based on its likeness to that of a reactor at New York University (NYU) that was contained within an actual pickle barrel tank. That NYU reactor was inspiration enough for Perry to create his own in the fall of 1958.

“He was a big risk-taker,” Walrad says. “That’s the main thing that the nuclear reactor exemplifies.” Perry’s students from his Reactor Theory and Operation class built the reactor.

“Perry handpicked a group of some of the brightest recent graduates. They were all interested in that,” says Byrum.

The reactor was designed by engineering students for engineering students. “It will be tremendously important in teaching since it demonstrates most of the characteristics of a large reactor and splits atoms,” Perry was quoted in a November 1958 issue of the Collegian, the university’s newsletter.

Walrad says, “The reactor was used as a vehicle for learning safety procedures and other training needs.” He helped build an early version of the pickle barrel. He says Perry used his students because the building process was done at “so little expense.” He drilled holes in them for long tubular fuel elements of aluminum-clad uranium rods to be placed inside.

The pickle barrel was 4 feet high and 3 feet wide and cost about $400 from a $137,764 grant to Wayne University from the Atomic Energy Commission (AEC). The college was loaned $100,000 in uranium needed for the reactor’s operation, also made possible by the AEC. Other equipment was purchased thanks to the grant as well: a rolling mill for the study of fabricating radioactive metals, an X-ray machine used to study radioactive rays, and a reactor simulator.

The nuclear reaction was engaged when a plutonium-beryllium neutron source was inserted into the center column of the reactor core, which was filled with water to serve as a moderator in the reaction process. The power output of the reactor was 1/100 of a watt, which reportedly was not enough to light a cigarette. “It could never overheat and the radiation exposure was under the allowable tolerance at the time,” according to the October 1958 Collegian.

Looking back, Walrad says he is proud of Perry’s accomplishment. “I kind of admired the guts… because, in hindsight, for any engineer to commit to something they’re not sure they can do or not, is special,” he says.

Walrad says there wasn’t much resistance to the reactor as you might expect from the anti-nuclear camp that began to swell in the late 60s. He says Perry’s reputation as a professor may have been a factor. “He was a very inspiring type of teacher,” Byrum says, adding that those students who participated in the reactor’s building process were “absolutely excited” about Perry’s ambitious project.

Byrum credits Perry among many teachers (including Herbert Lissner, Harold Donnelly, Stanley Stynes, and Milton Lebow) for laying the groundwork for the current generation of engineering faculty performing cutting-edge research. “They were doing things that led to technology today,” he says. “It was a great school. It was not a second-rate school. It was outstanding. I think it was highly underrated.”

- by Derrick Bean
Eight College of Engineering alumni were honored for their outstanding professional achievements and service at the college’s 2009 Night of the Stars, held at the college’s Marvin I. Danto Engineering Development Center Saturday, Oct. 3.

Five alumni were inducted into the college’s Hall of Fame during a special ceremony, while one alum was inducted previously at a special ceremony held in Seoul, Korea, joining a prestigious group of 117 alums inducted since 1983.

The 2010 Night of the Stars successfully raised more than $25,000 to benefit in part the Honors Convocation and the Order of the Engineer events for students.

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Message from the President

Dear Alumni and Friends,

What will 2010 bring to the Engineering Alumni Association (EAA) and its members? As was once said, the best way to predict the future is to create it, and we on the EAA Board of Directors are at work to do just that.

Our initial effort for this school year was in support of the Night of the Stars event held Oct. 3 in the new Marvin I. Danto Engineering Development Center. Six distinguished alumni were inducted into the Hall of Fame. Two were recognized for their industry achievement. The Socius Collegii award was presented. And Ralph Kummel was presented with the inaugural EAA Spirit of the Helios Award. Complementing the dinner and awards was an outstanding silent auction. I believe all who attended enjoyed the evening.

Not to rest on our accomplishments, planning is now under way for the 2010 Night of the Stars event. Planning is also under way for an early summer golf outing. And when you read this, we will have already held our EAA Wine Tasting event April 28 at the Wine Sync in Northville. For more information on EAA events, visit the Web site at www.eng.wayne.edu/alumni.

Regarding Web sites, Nathan Bennett, an EAA board member, has created a WSU College of Engineering Group on LinkedIn(R). This group now has more than 400 members. LinkedIn is a professional oriented networking Web site, which is also being used by employers and search firms seeking qualified candidates for open positions. Those seeking new career opportunities may wish to check out the Job Listings page on the EAA Web site. This page is based on an automated search of many job opportunity boards.

Through Engineering Alumni Grants for Education and Research (EAGER), the EAA board supports Wayne State teams competing in the Formula SAE, Concrete Canoe and Intelligent Ground Vehicle national competitions, the latter being a new EAA sponsorship in 2010. In addition, EAGER funds have been budgeted for awards at the 2010 Honors Convocation. EAGER funds are obtained through contributions and EAA fundraising events such as the Annual Golf Outing. An EAGER contribution form can be found on the inside back cover.

Recruiting and development continues for the EAA and for the Board of Directors with special focus on building active EAA membership. Several EAA board committee opportunities for alumni to become more involved in their support of the WSU College of Engineering.

As EAA board president, I serve on the Constituent Presidents Council (CPC). Collectively, the CPC represents the Alumni Constituent Groups and its president holds a seat on the Wayne State University Alumni Association Board of Directors.

I urge you to become a member of the Wayne State University Alumni Association and the Engineering Alumni Association constituent group. There are many rewards that accompany membership, and even more that accompany active involvement. Now is the time to create your future.

Tony Duminski, BSEE '65, MSE '69, MBA '82
Roman E. Boruta Endowed Scholarship

A $100,000 scholarship fund has been established in the name of Roman E. Boruta, BSAeroE’51, who passed away in August 2007. The scholarship fund, which was designated in Boruta’s will, recognizes scholastic achievement, encourages continued progress and provides assistance to students in financing their education in the College of Engineering.

Boruta’s wife Nancy says her husband established the scholarship, which will benefit either graduate or undergraduate students with a minimum 3.0 GPA, as a way for Boruta to give back to his alma mater. “Roman was very proud of the recognition of his wonderful career by Wayne State University,” she says.

Boruta, whose notable career spanned 55 years, was inducted into the WSU Engineering Hall of Fame in 1992 and received WSU’s Corporate Leadership award.

Ralph and Jeannie Kummler Endowed Scholarship

The Ralph and Jeannie Kummler Endowed Scholarship was created by Ralph and his family several years ago to support chemical engineering students throughout their academic careers. When Ralph passed away last Dec. 7, his good friend and alumnus Jim Anderson pledged to match all contributions up to $50,000. Ralph and Jean originally raised and contributed $23,000. Since that time, the scholarship bank grew, and reached $100,000 in pledges by the end of March, counting the matching gift. Thanks to the many people who responded since his death, including generous contributions from Bilal Kaafarani, Andrew Brown, Jay Noren, and Naeim Henien. To make contributions to the Ralph and Jean Kummler Endowed Scholarship, mail to: Wayne State University, Attention: Fund Office, 5475 Woodward Ave., Detroit, MI, 48202.
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"Yes! You can land a job even in a crummy economy," says career coach and alumna Theresa Marie Boldt

By David Reich, College of Engineering Public Affairs Officer

You’re sitting across the desk from a man named Bob, the gatekeeper to the job you want really badly. You’ve managed to connect with him in a certain way. He seems to like you, and you like him. You sense you may have persuaded him that you are the right person for the position. You’ve managed to keep your abject hunger under wraps by translating your desperation into smiles and eagerness.

Now the interview comes to an end. You both stand. As you shake his hand, you might say, “When do I start, Bob?” But that may be too aggressive. So, you say, “Bob, it’s been good to meet you, too. Based on what we’ve discussed, is there anything you know that would prevent me from getting this position?”

This is what job search and career coach Theresa Marie Boldt, BABus’83, suggests her clients and workshop participants say when closing a job interview. She has been coaching executives since 1983 and now turns her attention to executive assistants. She now works on her personal mantra, “We’re not going around asking anyone and everyone you know for a job. You’re walking around knowing at the deepest level you have something to offer.”

"People really want to help," she writes. And, when it comes to going around asking anyone and everyone you know, it is about learning to know yourself on a sublime level, and cultivating a self-affirming attitude in your relationship-building (a word most of us call “networking.”)

Boldt teaches that the journey into the self is a journey to discover the good and plenty within us all, then expressing that to connect with others, rather than letting our negative thinking seep in and closing off opportunities to engage in relationships.

Taking a serious inventory of yourself is not easy, but absolutely necessary in getting the job you want, growing and finding fulfillment in it, as well as finding fulfillment in life in general. “When you identify your core values, you’re in a much better position to develop the life vision that will guide you toward that ideal job or career,” Boldt writes.

Recruiters are specialists in placing niche clients, and in her career Boldt discovered her niche in placing executive assistants with CEOs. When she decided to re-brand herself from recruiter to coach, she found it difficult to start this self-examination process. So she performed an exercise to help identify what she was really good at. The exercise is called SWOT (strengths, weaknesses, opportunities and threats) Analysis, which companies often use to help them move forward.

Boldt suggests asking any number of good assessments created by experts to determine how you are wired. Besides assessments, she suggests asking people you know what they think of you. Many of us are too hard on ourselves. “There are many positive things about myself I wouldn’t think of that other people I know can say about me,” Boldt told her workshop participants. If you can afford a career coach, great, but if you’re unemployed, Boldt suggests asking friends, former co-workers, bosses, mentors, family, etc... to help. For herself, she asked about 10 people she knows to answer four questions: “What are my strengths?” “What are my weaknesses?” “What opportunities are there for me?” and “What are the potential threats to my success?”

She asked her friends to send their responses to her coach, so they wouldn’t shy away from truths they might not tell her. For those who don’t have a coach, she suggests they have the responses sent to someone you trust. “You’d be amazed at what you learn about yourself, the strengths people see that you didn’t think were important, the opportunities that you never considered possible,” she says.

Boldt is the job seeker’s friend and advocate in the best sense of the word. “We’re going to talk about things tonight that seem very radical, that will cause you to think out of the box,” she says at the start of her workshop. She then proceeds to create a positive, low-stress atmosphere for participants to share and be who they are.

Is anyone familiar with the film The Secret? she asks. If you don’t know, it’s about the Law of Attraction. And here’s her entry point. Successful job searching is about a frame of mind, a mindset open to opportunities, creating them, and being able to see them staring you in the face. After you’ve worked hard to develop this mindset, you’re not going around asking anyone and everyone you know for a job. You’re walking around knowing at the deepest level you have something to offer.

Let’s repeat that, because it’s the key: “You’re not going around asking anyone and everyone you know for a job. You’re walking around knowing at the deepest level you have something to offer.” Job seekers who have done their homework on themselves begin to understand an important maxim in her approach. “People really want to help,” she writes.

In her book and at her quick-paced workshops, she lays out the entire roadmap, sprinkling her presentation with some helpful nuggets of advice. No true job seeker is ready until they’ve come up with a positive sales pitch — some call it an elevator talk — that nails who they are and what they have to offer. This 30-second “commercial” as Boldt describes it, is the job seeker’s own personal mantra, describing clearly who you are and what you do, what you are good at, what it means to an employer, and what you’re looking for.

To order the book, learn more about Boldt and her work, read job-seeker testimonies, and a schedule of workshops, visit www.meettherese.com

Alumni

"There are many positive things about myself I wouldn’t think of that other people I know can say about me."
EXEMPLAR Magazine is an annual publication of the Wayne State College of Engineering offering news and feature stories on programs and activities at the college. It is distributed free to a growing list of 20,000 engineering alumni throughout the country, of whom 75 to 80 percent live in Michigan. We also produce an online version available at www.eng.wayne.edu/exemplar.

This is the 23rd year of EXEMPLAR. As the longest-standing communication tool with our alumni, EXEMPLAR continues to grow in content along with its popularity. It now has a staff of five – editors, writers, photographers and graphic artists working to develop articles and other content reflecting the importance of engineering education and R&D at the college so vital to the economic health and prosperity of the Southeast Michigan region and beyond.

Besides regular reports and profiles on faculty, students and alumni, EXEMPLAR presents feature stories on important issues, innovations and trends in engineering, technology and the environment. The college is an intersection of life coalescing in a changing world extending beyond the college. We strive to explore this intersection and its meaning to all of us by highlighting people we know striving to make the world around us a better place.

The magazine’s reach of 20,000 extends beyond its initial subscribers who typically hold onto their copy for many months before recycling or passing it on to friends and family members. EXEMPLAR is also distributed to the Wayne State campus community as well as to supporters and friends of the college.

We welcome sponsorships, which are a perfect way to support education and programming at the College of Engineering. Below are suggested support levels and the design specs. For more information, please contact the editor, David Reich, (313) 577-6531, or davidreich@wayne.edu.

EXEMPLAR is published once a year in April. Advertising submissions and copy must be received by March 1.

SPECIFICATIONS
- Trim Size: 8.5” X 10.875”
- Live Area: 7” X 10”
- Bleeds: 8.65” X 11.125”
- Halftone Screens: 150 lpi
- Image Resolutions: 300 dpi

EXEMPLAR is printed on 70 lb. stock by web offset printing.

Our preferred advertising specifications are as follows:
- Submit a high resolution PDF with embedded fonts. If registration or tim marks are used, offsets should equal 1/8 of an inch to ensure trim marks are not in the bleed area.
- If a high-resolution PDF cannot be sent, please supply linked files and related fonts.
- Photos and graphics should be 300 dpi, CMYK, .eps or .tif.
- Provide a high-quality digital proof.
- Distinguish your file with advertiser’s name, i.e., GM.pdf.

Ads saved in the specific program in which they are created will be accepted only if it is possible for the graphic artist to read and use them. EXEMPLAR is produced with Adobe InDesign on a Mac platform. Electronic submissions will be placed in position and separated electronically.

The rates include publication in both EXEMPLAR print and online.

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Advertising Information:
- Mailing instructions: Please email art as an attachment in PDF format 30 working days prior to publication to David Reich at davidreich@wayne.edu.
- Materials will be returned by us for a period of one year unless return is requested in writing.

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Detroit Institute of Arts
Saturday, October 2
Alumni partners up for book on Bob-Lo Island
By Sydney Redigan, College of Engineering Public Affairs Editor

Martin Magid, BSEE’59, JD’73, a retired U.S. Administrative Law judge, has partnered up with photographer Bill Rauhauser for the book Bob-Lo Revisited. Magid, who is a photography buff himself, wrote the text to accompany Rauhauser’s photographs of the Canadian island.

For those who aren’t familiar, during the 95 years it was in operation, Bob-Lo was a popular destination for Detroiters who would travel by the Bob-Lo boats to the two-mile long island at the mouth of the Detroit River. As Magid writes in the book, when it opened in 1898, the island featured a dance pavilion, tennis courts, and baseball diamonds and later a Vernors ginger ale factory, Ferris wheel and marina.

After World War II, Bob-Lo turned into a full amusement park.

Bob-Lo Revisited showcases 90 black and white photographs taken from a period spanning more than 40 years that tell a story from the boat ride to the island to the ride home. In the introduction, Rauhauser writes that he took the photographs out of enjoyment and that they remained tucked away in a box for years. In 2001, when Detroit was celebrating its bicentennial and Bob-Lo had been closed for eight years, Rauhauser thought it would be appropriate to finally publish the photos.

Because the photographs are not placed chronologically, the reader is transported from one decade to another as each page is turned, creating the experience of a single day on Bob-Lo that transcends time. The photographs show men in fedoras sitting at a picnic table, women in bee hive hairstyles and cat-eye glasses sunning on the boat and teens in bellbottom jeans slouching in the arcade.

The photographs also manage to exhilarate children riding the hand-carved carousel, enamored young couples on the beach, and serene adults relaxing on the boat ride home. The photographs show the appeal Bob-Lo held for people of all ages, regardless of the time period.

In the introduction, Rauhauser indicates that his photographs serve as a sort of collective memory for all who have visited Bob-Lo.

“They might serve as a catalyst to remind Detroit’s who made Bob-Lo a frequent summer outing – and all those from around the country who were occasional or even one-time visitors – of the wonderful times Bob-Lo provided,” he writes.

In the history section, titled Bob-Lo Island: Detroit’s Canadian Jewel, Magid also offers memories of Bob-Lo. Beginning in the 1700s, he traces the history of Bois Blanc, as the island was originally called, from the indigenous Hurons who farmed there, to the European settlers who came in 1742, to the park’s creation in 1898.

Some of the highlights of the comprehensive, 18-page history are the story of Bob-Lo’s creation in 1898. In the history section, titled Bob-Lo Island: Detroit’s Canadian Jewel, Magid also offers memories of Bob-Lo. Beginning in the 1700s, he traces the history of Bois Blanc, as the island was originally called, from the indigenous Hurons who farmed there, to the European settlers who came in 1742, to the park’s creation in 1898.

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Some of the highlights of the comprehensive, 18-page history are the stories Magid collected from interviews and newspaper archives. A story of a baby born on board one of the boats (she received a lifetime pass to Bob-Lo); memories of the 4-foot-4 “Captain Bob-Lo,” a former Ringling Brothers clown who worked on the boat into his 90s; and the time seven baboons escaped from the zoo and ran wild for two whole days, are just some of the memories Magid relays.

But not all of the memories are happy, and Magid includes these as they are also a very much a part of the island’s history. Racial discrimination, gang fights, and a number of ride accidents all shadow the history of Bob-Lo. In addition, Magid’s account includes the sinking attendance numbers by the mid-1980s due to the popularity of newer and larger amusement parks such as Six Flags.

Bob-Lo closed in 1993, and as Magid recounts, is now privately owned and undergoing residential development. In the final sentences of the book, Magid writes: “A new generation grows up knowing Bob-Lo only through the stories of their parents and grandparents.”

Through Bob-Lo Revisited, this new generation will be able to know Bob-Lo a little more personally. And for their parents and grandparents, the book offers a memory trip back to the island.

Bob-Lo Revisited

The Anthony Wayne Society
The Anthony Wayne Society recognizes donors who provide for Wayne State University’s future through their estate and financial plans such as wills and trusts, life-income plans, retirement fund gifts, life insurance gifts and charitable lead trusts.

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If you are interested in how your contribution(s) may be recognized in these groups, please contact Katora Cole, College of Engineering director of development, at 313-577-5840.
They came, graduated and made careers
By Harpreet Singh, Professor, Department of Electrical and Computer Engineering

A few years ago, the College of Engineering started a special program of attracting undergraduate students from India. A memorandum of understanding was signed with one of the upcoming private engineering institutions in India. This effort resulted in attracting a batch of students who were studying engineering in the Indian institution.

Many students from India are unaware that they can come to the United States after studying a few years of engineering in India. Their credits can be transferred and they can complete the remaining credits at Wayne State.

The program created a wave of undergraduate students coming to Wayne State. The students from IIT Bhaddal have graduated. They obtained valuable internships, which paid about $18 per hour, in the United States. They all have jobs and are very happy that they have made engineering careers after getting a Wayne State degree.

The students lived together in DeRoy Apartments and had a very academic and homey atmosphere. They participated very actively in the cultural activities of the university, such as the International Dance Show. At the show, the students performed Bhangra, a traditional Indian dance becoming increasingly popular. They also participated in cultural activities in the metropolitan Detroit area, which endeared them to the local Indian community. Additionally, they are serving as mentors for future undergraduate students to come from India to Wayne State.

The following is a list of the students and their employers:

Guneet Kaur, employed at Texas Instruments in Houston, Texas
Uday Vashishth, trained at MCPS, Inc. in Plano, Texas; employed at MasterCard in Saint Louis, Mo.
Sarabjit Singh, trained at MCPS, Inc. in Plano, Texas; employed at STG Inc. in Houston, Texas
Harminder Singh, trained and employed at MCPS, Inc. in Plano, Texas
Smaksh Kapoor, trained and employed at MCPS, Inc. in Plano, Texas
Kiranjit Singh, trained and employed at NYX Inc. in Livonia
Sauvir Singh, trained and employed at NYX Inc. in Livonia

Proud professor Harpreet Singh (front center) surrounded by students he recruited from India and their families.
Consider a planned gift to the college

A bequest or other planned gift is a great way to support the college’s important mission while honoring someone you love or creating your legacy at the college in perpetuity. The College of Engineering needs scholarship funds to assist promising engineering students and unrestricted funds to improve and expand its instructional and community service programs. Examples of Planned Gifts are: bequest in your will or trust, life-income gifts such as a charitable gift annuity or a charitable remainder trust, gift from your retirement fund at the end of your lifetime, or a life insurance policy that will benefit the college after your lifetime. Potential benefits are: satisfaction of supporting the college, reducing income tax liability, avoiding or minimizing probate costs, reducing estate and inheritance taxes, receiving annual payments for your lifetime or the lifetime of a loved one, or lifetime or the lifetime of a loved one. Gerrie Paulson, director of Planned Gifts, can explore these options with you.

After receiving his bachelor’s degree from Wayne State, Rutenbar received both his master’s degree and PhD from the University of Michigan in 1979 and 1984. He then joined the faculty at Carnegie Mellon University. In 1998, Rutenbar co-founded Neolinear Inc. to commercialize the first practical synthesis tools for analog designs. He served as Neolinear’s Chief Scientist until its acquisition by Cadence in 2004. In 2006, he co-founded the Silicon Vox Corporation to commercialize ultra-high-performance architectures for speech recognition. He is the founding director of the U.S. Focus Research Center for Circuit and System Solutions (C2S2), a Carnegie Mellon University-led consortium of 19 U.S. universities and more than 50 faculty funded by the U.S. semiconductor industry and U.S. government to address future circuit and system challenges.

Rutenbar has won many awards throughout his career, including the 2001 Semiconductor Research Corporation Aristotle Award for excellence in education, and the 2007 IEEE Circuits & Systems Industrial Pioneer Award. He is a fellow of the ACM and IEEE and was inducted into the Wayne State College of Engineering Hall of Fame in 2008. As a fellow of the ACM and IEEE and was inducted into the Wayne State College of Engineering Hall of Fame in 2008.

Alum named head of Computer Science Department at University of Illinois

Rob A. Rutenbar, BS/EECE’78, was named head of the Department of Computer Science in the College of Engineering at the University of Illinois at Urbana-Champaign. Rutenbar had been the Stephen J. Jatras Professor of Electrical and Computer Engineering at Carnegie Mellon University in Pittsburgh, Penn. He officially took his new position Jan. 1.

“I am thrilled and honored to have been chosen as the next department head of computer science at Illinois,” said Rutenbar. “It should be an interesting new set of challenges for me. It’s a big department: 57 tenure-track faculty. Unlike Wayne State, the computer science department is in the college of engineering. I look forward to working with my new colleagues at Illinois.”

Rutenbar has worked on algorithms and software tools for custom circuit synthesis and optimization for more than 20 years, and on silicon architectures for speech recognition for the last half dozen years. His current research activities include work on statistical algorithms to understand the behavior of nanoscale designs, and strategies for hardware acceleration of machine learning and data mining tasks.

Alumnus Helen Lou honored by Lamar University

Helen Lou, MSChE’98, MSCS’01, PhDChE’01, an associate professor of chemical engineering at Lamar University in Texas, was named Lamar’s 2009 University Scholar, the university’s highest honor, recognizing research and creative activity.

“The University Scholar Award honors a faculty member for his or her outstanding contribution to scholarship, research, grant writing and/or creative activity,” said Stuart Wright, director of research in the office of Research and Sponsored Programs Administration at Lamar.

“It is a career/lifetime achievement award, recognizing the recipient’s body of work.”

Lou, who studied under chemical engineering professor Yinlan Huang while a graduate student at Wayne State, joined the Lamar faculty in 2001 and is building a nationally recognized program in the frontier of sustainable manufacturing, according to the university.

“My objective is to empower engineers to develop sustainable products and processes to reduce resource use, minimize the adverse environmental impacts while maximizing the profitability,” said Lou.

“Dr. Lou excels in every aspect of the scholar-teacher,” said Jack Hopper, dean of the Lamar College of Engineering and executive assistant to the president for economic development and industrial relations at Lamar. “She is, without question, one of the most productive and effective researchers to ever be in the College of Engineering at Lamar. She has consistently been at the forefront of proposals submitted and funded.”

According to T.C. Ho, regents’ professor and chair of the Department of Chemical Engineering at Lamar, Lu has received more than $1.47 million in research grants as primary or co-primary investigator in 28 funded projects.

Ho said that in addition to teaching and service, Lou’s scholarly activities and accomplishments have been “exceptional.” She has participated in all kinds of scholarly and creative activities, including preparing research proposals, carrying out funded research products, supervising graduate students, publishing and presenting results, serving as an organizer and chair for professional societies and chairing sessions of national and international conferences.

“I want to thank all of you who made this happen...my colleagues and collaborators and the strong leadership of our university,” Lou said as she accepted the award. “I also want to thank my students, and I wish all of them a bright future. Last, but not least, I want to thank my family.”

She and her husband, Michael, have a one-year-old son, Richard.

Before attending Wayne State, Lou graduated from Zhejiang University in Hang Zhou, China, with a bachelor’s degree in chemical engineering. She has previously received the Lamar University Merit Award for outstanding teaching and research performance and is a three-time recipient of a Lamar Research Enhancement Grant.
Nick Johnson is now doing what he likes. After working nearly three years in the industry, he decided that he needed to reinvent himself as well as the job he was doing. Nick had been working as a young process engineer for a General Motors assembly plant for several years after graduating with an engineering degree from Michigan State. “I wasn’t applying what I learned in college,” he says. So, in 2002, he enrolled in Wayne State’s Alternative Energy Technology program, studying full-time toward a degree in an emerging field that would sustain his career well into the future despite economic conditions.

At the College of Engineering, Nick learned about systems and technologies applicable across a broad range of fields, not just in automotive. He joined a research team developing new low and carbon neutral fuels. For his final project, he got the foundation to see the broader view, to research things on my own and see how they work,” Nick says.

Taking his new skills into the workplace, he landed a job with Booz Allen Hamilton, where he now is a member of its U.S. Army Alternative Fuel Team. The group is contracted to help the Army supplement and replace the jet fuel blend it uses for its military vehicles with lower carbon emitting fuels. It’s a big challenge requiring understanding of systems, engineering and chemical engineering. But Nick, now 27, says he is confident he and his team members are prepared for the task. “I got really inspired utilizing the skills I learned in the WSU program,” he says.

William O. Harms, BSChE’48, received a certificate of achievement from the Oak Ridge, Tenn., chapter of the American Society of Metals International last year. William retired in 1986 from his position as a nuclear engineer at the Oak Ridge National Laboratory where his last position was director of Advanced Nuclear Reactor Technology Programs.

Prior to his tour at Oak Ridge, William spent 25 years with Union Carbide as a metallurgist. After spending a head of the ceramics laboratory, the section chief for research and development, and director of the Breeder Reactor Program. He was associate professor of metallurgical engineering at the University of Tennessee for five years until 1960. After graduating from Wayne State, William continued his education at the University of Minnesota where he earned a PhD. He is a fellow of the American Society of Metals, and the American Nuclear Society. He also served as a delegate for the World Metal Congress in 1957.

William has traveled extensively to consult and to present some of his more than 25 published works. He is currently enjoying his retirement with his family in Knoxville, Tenn.

Andrew Seleno, BSEE’49, MSSE’56, who taught electrical engineering courses at WSU part time from 1957 to 1981, retired in 2006. He says the best professional lesson he learned at the college is to be honest. He advises current students to work hard. Andrew resides in Troy.

Carl Argiroff, BSCE’55, is retired from the U.S. Army Corps of Engineers. He currently resides in Brighton.

Edward Lovell, BSAeroE’60, MSEM’61, has retired after four decades as a professor with the University of Wisconsin College of Engineering Department of Mechanical Engineering. Edward, whose primary research focus is structural mechanics, has published more than 230 research publications and taught more than a dozen different courses in his career. In his retirement, Edward hopes to play more racquetball, finish building a new home, and work with the family’s golden retrievers as therapy dogs. Edward resides in Madison, Wis.

Earl J. Waters, BSEE’62, retired from AT&T in 1989 and now resides in Sanford, Fla. He has spent his time “engineering a golf ball through course.”

Andrew Mazzaro, BSME’66, retired in 2005 from his position as president of Henry Ford Community College. He spent 15 of his 34 years at the college in this position. Andrew resides in Dearborn.

Frank D. Moore, BSME’67, retired in 2003 from the U.S. Department of the Interior where he was a petroleum engineer. He is now an AMSOIL Oil dealer and lives in Canon City, Colo.

Ronald Liedel, BSME’68, retired last September after 40 years in civil service. His last position was director of the Genetic Programming Lab in Huntsville, Ala., where he resides.

Michael A. Capraro, BSCE’70, MSChE’74, retired in 2006 after 36 years with BASF where he most recently managed of Scale-up and Specialty Production and Chemical Engineering. A competitive runner, Capraro is also active at his church and is a volunteer mentor for the Downriver Guidance Center. He resides in Riverview and reports that retirement is not boring.

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Charles T. Robinson, BSCE’70, MSCE’71, was appointed president of the Albert Kahn Companies, a Detroit-based provider of architecture, planning, design and management services. Chuck joined the firm in 1969 and prior to his promotion, served as executive vice president. He resides in Birmingham.

John A. Sullivan, BSCE’70, has retired and lives in Houghton when he’s not spending winters in Vero Beach, Fla.

Andrew Brown Jr., BSCE’71, PhD’92, executive director and chief technology officer of Delphi Corporation, was inducted into the Engineering Society of Detroit College of Fellows at the 2009 ESD Annual Dinner. The College of Fellows is a group of ESD members of outstanding and extraordinary qualifications and experience in their professions as evidenced by accomplishments in technical achievement, professional achievement, ESD service and leadership and professional society service and leadership. He resides in Southfield.

David Skiven, MSCE’74, who recently retired from General Motors after 42 years, received the Horace H. Rackham Humanitarian Award at the 2009 Engineering Society of Detroit Annual Dinner. The award recognizes outstanding humanitarian achievements as exemplified by meritorious technical accomplishments for the benefit of humanity or by
David resides in Brighton.

Suhada Jayasuriya, MSME’80, PhDME’82, is the Kotzebue endowed professor of mechanical engineering at Texas A&M University in College Station, Texas, where he resides. He is currently on leave from Texas A&M and serves as director of the Control Systems Program in the ChMM Division of the National Science Foundation in Washington, D.C.

Krish Panu, BSEE’81, is a member of the board of directors for Concurrent, a worldwide leader in real-time Linux-based computing technologies. Panu is a manager for The Galleon Group, one of Concurrent’s largest shareholders. He resides in Los Altos Hills, Calif.

Christine Mubarak Shanti, BSME’93, is one of the few female pediatric general surgeons in Michigan. She is on staff at Children’s Hospital of Michigan in Detroit and Huron Valley-Sina Hospital in Commerce. In addition, she is a pediatric surgeon specializing in infants at Henry Ford and Oakwood Hospitals.

As an undergraduate, Christine was discouraged from studying medicine by a college counselor, so she took her love of physics and math and applied to Wayne State where she earned a bachelor’s degree in mechanical engineering. Christine excelled at the college, graduated summa cum laude and was named Michigan Student Engineer of the Year in 1993.

Christine, however, never practiced as an engineer. Instead, she enrolled at WSU’s Medical School on a full-tuition academic scholarship and received her MD in 1997. Since then, Christine has worked at Wayne State on two fellowships: one in surgical critical care, from 2000 to 2001, and one in pediatric surgery, from 2003 to 2005. Christine has been featured in the Detroit Free Press for her commitment to caring for both her young patients and her own two children, who were born while Christine was still in school. She resides in Bloomfield Hills.
Remembering

Offer Franklin Preuthun, 1921-2009

Offer Franklin Preuthun, BSME'48, long-time member of the College of Engineering Alumni Association (EAA) Executive Board, passed away June 1, 2009, at the age of 87.

Fred Levantrosser, BSCE'60, MSCE'65, who served with Frank on the EAA Board, remembers him as determined, serious and loyal to the college. “He worked very hard on every task and began many by his own creativity,” says Levantrosser. “Wherever we met, he made sure to ask about your activities and was very interested in helping others.”

Frank served four years in the Army Corps of Engineers during World War II. He then worked for R.L. Deppman Company in Detroit for 20 years and Water Saver Systems Company in Farmington for five years. He then partnered with a friend to form Water Systems Engineering Company in Ferndale for five more years.

Frank was active in St. Peter’s Danish Lutheran Church in Detroit and helped start the Cana Evangelical Lutheran Church in Berkley, where he served on the council for many years. In his earlier years, he was active in the Boy Scouts as a Scout Master. Frank enjoyed genealogy and spending time at the summer home he built with his father in Lapeer County.

He is survived by Cecily, his wife of 57 years; children, Offer Vincent Preuthun, Robert Garth Preuthun and Maren Preuthun Johnson of Rochester Hills; grandchildren, Offer Christian Vincent Preuthun, Heather Kathleen Johnson and Erin Elizabeth Johnson.

Services were held at Cana Evangelical Lutheran Church in Berkley and burial was at Woodlawn Cemetery in Detroit.

Remembering

John W. Shier, 1923-2009

The college laments the loss of Hall of Famer John W. Shier, BSCHE'48, who died Sept. 3, 2009, after a brief illness. He was 86.

John was among the first group of distinguished alumni to be inducted into Wayne State’s College of Engineering Hall of Fame in 1983.

John is survived by Louise, his wife of 65 years, six children, six grandchildren, and two great-grandchildren.

Prior to attending Wayne University, John served in the U.S. Army in Europe during World War II under General George Patton and upon returning home received a Bronze Star Medal for his bravery.

He worked nearly 50 years for Acheson Industries as a director and former executive vice president until his retirement in 1998. John expanded Acheson facilities across Michigan and organized the building of new factories all over the world during his nearly five-decade tenure.

The college served as chairman of the board at St. Joseph Mercy Hospital in Port Huron, director of the Peoples Bank of Port Huron, and trustee and first vice president of the Port Huron District Foundation. He was a member of the Port Huron Golf Club and was named president in 1971.

John was also a member of the Engineering Society of Detroit, the American Chemical Society, the American Institute of Chemical Engineers, and the Economic Club of Detroit.

John gave back to his community with generous donations to engineering at Wayne State. He also supported the Mid City Nutrition Program and Soup Kitchen and the People’s Clinic for Better Health in Port Huron Township, among other groups.

A celebratory mass was held Sept. 9, 2009, at St. Stephen Catholic Church in Port Huron. Sher, a devout Catholic, was a reader there on many Sundays. Burial was held at Mt. Hope Cemetery in Port Huron.

You can now follow the WSU College of Engineering Alumni Publications on Facebook and Twitter.

You can find our fan page on Facebook by searching for “Wayne State College of Engineering Alumni Publications.”

And follow us on Twitter at twitter.com/COEAlumniPubs
The Missouri Board of Architects, Professional Engineers and Land Surveyors convicted the contractor of gross negligence, misconduct and unprofessional conduct in the practice of engineering. A number of principals involved lost their engineering licenses, several firms went bankrupt, and many expensive legal suits were settled out of court.

Usmen uses the case as an example of the importance of meeting professional responsibilities, and what the consequences are for professionals who fail to meet those responsibilities. “This case is particularly serviceable for use in structural design, statics and materials classes, although it is also useful as a general overview of consequences for professional actions,” he says.

Jason Dimaria, MSCEE’06, completed the ethics course in fall 2006 in his last semester before graduation. “We learned about the professional responsibility engineers have to the well-being of the general public. Public safety is the most important aspect of being an engineer, and above all, having a good sense of ethics and integrity is one of the keys to having a successful professional career,” says Dimaria.

Dimaria, 29, went to work for Ruby and Associates of Farmington as a structural engineer immediately after graduation. He says on the job he always remembers and examines what he learned about ethics at Wayne State. “I always have it in the back of my mind when an issue comes to the forefront.”

A client of Dimaria’s was once in a rush to get a job done, but he told the client he needed more time to do a thorough examination. “What was right trumped what the client wanted,” says Dimaria. His boss backed his decision.

Dimaria says he would not have been as prepared to deal with ethical issues if not for Usmen’s class a few years ago. “I don’t think it’s stressed enough. It shouldn’t be just one class. I would like to see it more expanded into the curriculum. Every engineer should ask, ‘Is this ethical?’ when dealing with a particular situation where doing the right thing is not always obvious. Because that’s where I think a lot of problems arise. We get hung up on other issues and do not always ask ourselves about the ethics and integrity of the problem at hand.”

Usmen adds, “A lot of what is unethical is also illegal. If by being unethical, you are violating the law, you will be prosecuted. When you are unethical, it catches up sooner or later. Whether you are a business manager, engineer, professor or student – you will get caught.”

Driving that point home to students is his mission. “We have to educate the students about academic dishonesty and its consequences.”