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2011

OHIO ENGINEERING SCHOOLS: A YEAR OF SUCCESS IN REVIEW



Education &
Technology
Issue

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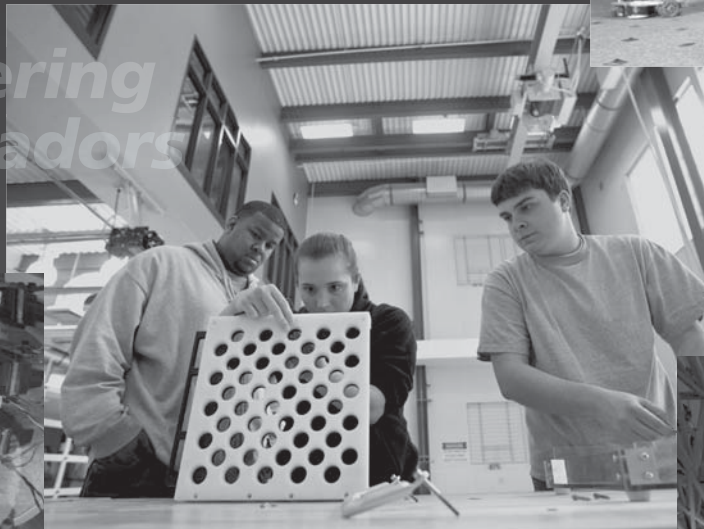
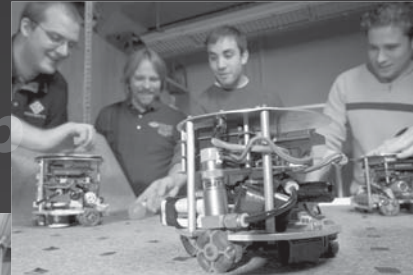
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LEADERSHIP VIEWS

by Russ Critelli, P.E., President, Engineers Foundation of Ohio



Engineering our success

It is interesting to note that in Michael Hiltzik's book *Colossus*, which is the story of the Hoover Dam, the author cited that Frank Crowe, the civil engineer who oversaw the construction of the dam, became such a public figure that Buick hired him for advertising. That may possibly have been the last time a civil engineer was given "celebrity" status.

This change from what's "hot" to what's not has been evident for some time. The engineering community has long since realized and accepted the fact that it is not on the front page of discussion in the "social media" world in which we live. Marketing products in America usually include a sports hero, Hollywood celebrity, or pop star.

While we engineers are not typically fame-seekers, we are still proud of the profession we have chosen and are eager to see it thrive among future generations of Americans. We have assessed the importance of engineering and science degrees in maintaining America's competitiveness in a global market.

An obstacle threatening the success of our future is a decrease in the number of graduates of engineering and science degrees in comparison with graduates of non-technical degrees. I'm sure we have all come across news articles similar to one I read, which was titled "Don't Fail Me: Education in America." This particular article examines the crisis in our public education system and why America's financial future is at risk if our students can't excel at math and science.

The good news is that there are efforts to counter past trends and increase interest in math and science and re-ignite young minds are being pursued through a variety of resources and methods. TV shows, such as "Myth Busters," "Build It Bigger," and "Sports Science" are great opportunities to use television media in a positive way. The more on-the-ground efforts are being accomplished by organizations such as the Engineers Foundation of Ohio (EFO).

EFO's mission includes advancing engineering education in Ohio and supporting the engineering profession. As OSPE's not-for-profit educational affiliate, EFO focuses its programs on elementary,

middle school and senior high school students' proficiency in math and science. For nearly five decades, EFO has contributed to the development of thousands of aspiring engineering students and talented school children through programs covering every stage of the engineer's development, such as:

- **Imagine Engineering Second Grade Coloring Contest** – Features an in-class presentation by an OSPE member. Approximately 7,500 kids participate annually in their classrooms throughout Ohio.
- **Ohio MATHCOUNTS** – While more than 2,000 sixth, seventh, and eighth graders compete in local MATHCOUNTS competitions in Ohio, approximately 13,500 Ohio students benefit from exposure to the program. MATHCOUNTS emphasizes and highlights math excellence and its importance in early stages of educational development. It is supported by the many engineering deans who host these events at their campuses throughout Ohio.
- **Engineering Scholarships** – Each year, approximately 20 students receive EFO scholarships at a value of nearly \$30,000. Nearly 100 students apply for 150-200 EFO scholarships annually.
- **Continuing Professional Development (CPD) Programs** – ELI: The Engineer As Leader is a two-day seminar in February featuring nationally-known engineering leadership expert, Jim Dalton, CAE. The Benefit Golf Outing includes a 2.0 CPD hour seminar. Approximately 150 PE's annually attend the Fall CPD Conference in Columbus. December seminars are held in the Toledo and Cleveland markets to accommodate northern Ohio PE's.

Please support and get involved with EFO and your local chapters' efforts to advance engineering education. Remember, taking time to mentor students will be an investment that leads to our future engineering success.

EFO President Russ Critelli, PE, is vice president with The Mannik & Smith Group, Inc.

On the cover:

Ohio Northern University's Baja team finished as the highest-ranking U.S. team in the running for the 2011 Mike Schmidt Memorial Iron Team Award, given to the group that earns the highest cumulative point score at three regional events. *Photo: Ohio Northern University. Story on "Ohio Engineering Schools," page 6.*



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LEADERSHIP VIEWS

by Tim Schaffer, Executive Director, Ohio Society of Professional Engineers

Leadership qualities

The fifth in a series of reviews of NSPE's book, "Engineer Your Way to Success"



In the NSPE publication, "Engineer Your Way to Success," author Shawn P. McCarthy investigates the nature and qualities of leadership. He first defines it as the ability to motivate others to move with enthusiasm toward a goal that is seen with a passion. He mentions that the military lifestyle stresses that one must learn how to first follow before he or she learns how to lead. "The so-called 'followers' of the world are the people who ultimately decide who their leader is."

McCarthy says that leadership ability is an important aspect to a developing engineering career, whether the young engineer knows it or not. He asked a group of three U.S. Corps of Engineers generals to define a good leader. He received some interesting feedback, but they had a difficult time defining it.

One general said "the leader knew what his weaknesses were and found some way to compensate for them," often

by finding an assistant who possessed the skills the leader did not. Another general said there is no one single definition of "leader" because there are too many variables involved.

A general mentioned that a true leader "takes the risks." He may offer trust to someone who is not inclined to trust back, "betting on that person to respond in-kind."

Learning from every person on the team is also a trait the generals cited. "There are talented people at every level of the organization. All one needs to do is allow that talent to show and bloom forth." Less effective leaders give up on people and write them off.

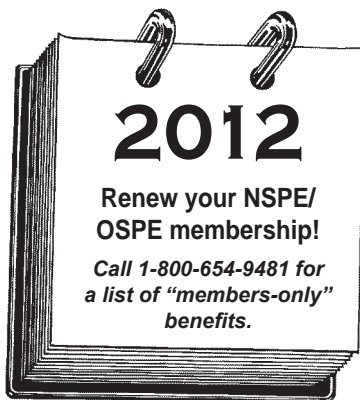
McCarthy engages in the debate whether good leadership can be learned, or is one born with it? "Sometimes the best leader is the best person who didn't set out to be a leader," McCarthy says. "I think leadership can be learned," an industry vice president told McCarthy. According to another industry engineer, society stresses that great leaders are not trained but are born great leaders, which he believes is false. "I feel that leadership

is definitely a skill that can be taught. It needs to be taught, and it's something that young engineers need to learn," McCarthy says.

In a survey of the employees of corporate CEOs who were effective in building successful companies while maintaining employee loyalty, McCarthy found several revealing, common insights. First, leaders have vision and passion. Communicating the vision with passion and motivating the employees to reach the goals becomes a motivating force. Second, leaders listen. The leader detects assumptions made by team members and uses those assumptions to progress toward the goal. Third, leaders trust the followers' interests. "You obey authority, but you trust the leader," McCarthy says. Lastly, leaders possess a positive regard for the followers and that translates into reinforced self-confidence. When employees feel good about themselves, they perform at higher levels.

McCarthy goes on to describe two more lists of leadership qualities, too lengthy to review here. But he narrows the topic with this: "Calling someone a leader and giving him rank isn't always enough. If the followers don't believe in their leader, there can be trouble."

OSPE members may request a free copy of "Engineer Your Way to Success" by calling OSPE at 1-800-654-9481 (223-1144 in Columbus).



CALLING ALL OSPE MEMBERS!

EFO needs proctors, scorers and registration volunteers for the Ohio MATHCOUNTS competition, Saturday, March 10 at Columbus State Community College.

Phone 1-800-654-9481 (Ohio toll-free) or 614-223-1177. E-mail efo@ohioengineer.com

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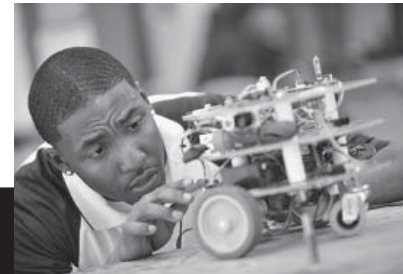


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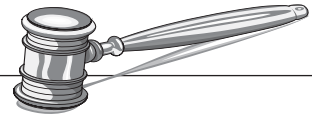
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Settlement agreements result from cases involving aiding & abetting, practicing without CoA, continuing ed & disciplinary action

The Ohio State Board of Registration for Professional Engineers and Surveyors accepted settlement agreements in five cases.

PE Aiding & Abetting in Unlicensed Practice of Engineering Pays Fine & Receives Reprimand

The Ohio Board of Registration said Mark W. Hoffman, PE, a resident of Rome Township, Ohio, aided and abetted the unlicensed practice of engineering by an unlicensed drafting company, which is a violation of the Ohio Revised Code. Hoffman entered into a settlement agreement wherein he agreed to comply with the laws and rules governing the practice of engineering, pay a \$500 fine and receive a reprimand.

Man Who Practiced without CoA Agrees to Comply with Laws & Rules

According to the Ohio Board of Registration, Edward L. Sutliff, a resident of Rome, Ohio, and owner of Western

Reserve Drafting, offered and provided engineering services in the State of Ohio at a time when he did not possess a certificate of authorization (CoA), which is a violation of the Ohio Revised Code. Sutliff entered into a settlement agreement wherein he agreed to cease offering engineering services in Ohio and comply with Ohio laws and rules governing the practice of engineering.

PE Surrenders License as a Result of Continuing Education Audit

Robert C. Gauss, PE, a resident of Aurora, Ohio, was randomly selected for the Ohio Board of Registration's continuing professional development audit. The Ohio Board of Registration said that Gauss contacted the Ohio Board and reported that even though he indicated on his renewal form that he met the continuing education requirement, he did not complete the requirement prior to renewing his license for 2011. Gauss offered to enter into a settlement agreement wherein he voluntarily surrendered his PE license for

violating the Ohio Revised Code.

Audited PE Completes Continuing Education, Pays Fine & Receives Reprimand

Karl L. Dammeyer, PE, a resident of St. Mary's, Ohio, was randomly selected for the Ohio Board of Registration's continuing education audit. According to the Ohio Board of Registration, Dammeyer contacted the Ohio Board and reported that even though he indicated on his renewal form that he met the continuing education requirement, he did not complete the requirement prior to renewing his license for 2011. Dammeyer completed the continuing education and offered to enter into a settlement agreement wherein he agreed to pay a \$2,000 fine and receive a reprimand for violations of the Ohio Revised Code.

PE Has Ohio License Suspended for Not Reporting West Virginia Disciplinary Action within 60 Days

The Ohio Board of Registration reported that Carl V. DeiCas, PE, a resident of Monessen, Pennsylvania, had his PE license suspended by the West Virginia State Board of Registration for Professional Engineers for one year for allowing another person to use his suspended license on at least eight projects. The Ohio Board of Registration said DeiCas did not report the disciplinary action taken by the West Virginia Board to the Ohio Board within 60 days, as required by law. DeiCas entered into a settlement agreement for violations of the Ohio Revised Code and Ohio Administrative Code wherein he agreed to pay a \$2,000 fine, receive a reprimand and have his PE license suspended until his PE license is active and in good standing in the State of West Virginia.

State Board Releases 2012 Schedule

The State Board of Registration for Professional Engineers and Surveyors has released its meeting schedule for 2012. Unless otherwise noted, meetings are held at 50 W. Broad Street, Suite 1820 in Columbus. This schedule also includes the dates of upcoming exams and NCEES meetings.

- January 19, State Board Meeting
- February 16, State Board Meeting
- March 15, State Board Meeting
- April 13, Professional Practice Exams
- April 14, Fundamentals Exams
- May 17, State Board Meeting
- May 17-19, NCEES Central Zone Meeting, Jackson Hole, Wyoming
- July 19, State Board Meeting
- August 16, State Board Meeting
- August 22-25, NCEES Annual Meeting, St. Louis, Missouri
- October 18, State Board Meeting
- October 26, Professional Practice Exams
- October 27, Fundamentals Exams
- November 15, State Board Meeting

Nelson Kohman, PE, is appointed to State Board

Nelson Kohman, PE, has been appointed to the State Board of Registration for Professional Engineers and Surveyors by Gov. John Kasich for a term ending September 24, 2016.



Nelson Kohman, PE

Kohman is the retired president of Evans, Mechwart, Hambelton & Tilton (EMH&T, Inc.). As president of EMH&T, Kohman led the firm to become the largest full-service engineering firm in Central Ohio with over 400 employees. Kohman has over 30 years of engineering experience in which he was involved in developing client relationships with communities and government agencies, preparing economic and environmental impact studies and serving

as a consulting engineer and advisor to growing communities and numerous planning and zoning commissions.

Kohman currently serves as president of Ohio Consulting, LLC and Water Quality Solutions. He also serves as a board member of Ohio University's Civil Engineering Advisory Board, the Licking County Family YMCA, and

the Central Ohio Technical School, Pataskala Campus.

Kohman graduated *summa cum laude* from Ohio University earning a bachelor of science degree in civil engineering and has been registered as a professional engineer in Ohio since 1976.

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Ohio engineering schools: A year of success in review

Air Force Institute of Technology:
SIE students build wheelchair
ramps for elderly and disabled

Members of Sigma Iota Epsilon at the Air Force Institute of Technology worked over the last year to build two wheelchair ramps in Dayton, OH for the elderly and disabled. The ramp additions, at the homes, increased mobility and independence of the recipients. Students created tailored designs to accommodate possible future modifications to the residences including a chair lift for second floor access and a handicapped accessible bathroom. The organization hopes the student led project can continue building two construction projects per year helping to develop management skills while giving back to the Ohio community.

Miami University: NASA internship
to develop the world's first
self-powered smart window

Lyndsey McMillon recently completed her internship with NASA's Undergraduate Student Research Program (USRP) where she, along with Jeremiah McNatt – the NASA lead for the "Adaptive Windows: Path to Zero Energy Buildings" – helped to develop a small scale working semi-transparent solar cell, which will automatically change the tinting of the window throughout the day. Her time was spent at the Glenn Research Center in Cleveland with the Photovoltaic and Power Technologies Branch that has partnered with Alpha-Micron, Inc., to create a smart window.

These solar cells are considered the corner stone for developing 'green' buildings. What the research of McNatt and McMillon brings to the table is a lightweight and potentially very inexpensive solar cell that will power the smart windows of the future.

Ohio Northern University:
Inspiring our future

Ohio Northern University's College of Engineering has developed a new and unique major in engineering education that directly addresses the need to develop a new generation of high school students who can contribute to solving our nation's challenges through engineering and innovation. The new program is one of the first of its kind in the United States. The program combines a general engineering degree with the required education and math courses to be licensed as secondary math teachers in Ohio. The engineering education major will introduce teachers into school systems who have an inherent appreciation of engineering as well as the ability to integrate math and science along with engineering analysis and design into the classroom.

In other news at Ohio Northern University, the school's Society of Automotive Engineers (SAE) Baja team finished its highly successful season as the highest-ranking U.S. team in the running for the 2011 Mike Schmidt Memorial Iron Team Award. This award is



Miami University's Lyndsey McMillon and her mentor, Jeremiah McNatt, a NASA electrical engineer, are opening the Sputter Machine to retrieve the deposited thin film solar cells which will then be characterized by a series of additional tests and analysis, including, X-ray diffraction, spectrophotometry, thickness measurement, and Hall resistivity measurement. Photo: NASA's Undergraduate Student Research Program.

given to the group that earns the highest cumulative point score at the three seasonal regional U.S./Canada Baja SAE events.

The Ohio State University:
Aerospace engineering students
take the drag out of fuel-efficiency

In a senior project for Honda R&D Americas Inc., Ohio State aerospace engineering students designed a vehicle's upper body with the lowest possible drag coefficient for improved fuel efficiency.

"When the students are challenged to explore new 'outside-the-box' ideas, they help us keep a fresh perspective and an open mind," said Honda engineer Mike Ellington. The students built and tested a quarter-scale model; Honda will consider their ideas in automobile development.

"The best part of the project," said student Zachary Webster, "was I had the chance to build something I helped design without straying away from my interests in aerodynamics."

Ohio University: Team places
2nd nationwide in ergonomics
evaluation software competition

An Ohio University student engineering team placed second of 29 teams nationwide in an ergonomics evaluation software competition sponsored by Auburn Engineers, Inc. The five industrial and systems engineering majors used Auburn Engineers' software "eTools" to diagnose potential musculoskeletal problems among marching band members – and won \$200 each. The students worked on the problem over the course of fall quarter 2011 in addition to their usual coursework. Two other Ohio

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EFO impacts more than 21,000 lives annually

Founded in 1964, the Engineers Foundation of Ohio (EFO) works closely with industry, school systems and colleges and universities to foster students' interests in engineering and mathematics. EFO also works with top technical industry leaders and business industry leaders to provide first-rate continuing education for Ohio's professional engineers (PE's). From second grade to middle school, from high school and college to professional engineering, EFO impacts more than 21,000 lives annually.

At the impressionable age of seven, through EFO's Imagine Engineering program, thousands of Ohio second grade students are first introduced to the concepts of engineering, design, and how variables can affect outcome. In middle schools around Ohio, EFO invites students to hone their math skills by participating in Ohio MATHCOUNTS, the nation's premier math competition program for sixth, seventh and eighth graders.

As students age and prepare for college, many of them contact EFO for a scholarship application and EFO's Engineering Your Career brochure, which is now available online. In fiscal year 2012, \$27,300 in scholarships is available for 19 of Ohio's brightest students in ABET-accredited engineering programs.

EFO annually sponsors education programs to give PE's the skills to become engineering leaders while they earn their continuing professional development (CPD) hours to renew their licenses. EFO's educational programs, such as "The Engineer As Leader," the Golf Outing Seminar, the Fall CPD Conference, and the December CPD Seminars, consistently earn top marks on participant evaluations.

Professional Program

Engineers learn the latest about engineering ethics, law, human resources & insurance at EFO's autumn CPD programs

The Engineers Foundation of Ohio (EFO) sponsored two CPD programs this fall. The sixth annual Fall CPD Conference, worth 15.0 CPD hours, was held in November at the Fawcett Center in Columbus. Also, December seminars, each worth 6.0 CPD hours, were held in Independence and Perrysburg.

The Fall CPD Conference was a highly successful event with nearly 190 registrations and excellent evaluations. Participants were given the tools and techniques for writing an engineering business plan, managing engineering projects, and evaluating engineering ethics cases. They also explored other ethics, legal, and managerial topics, such as avoiding a State Board of Registration investigation; leadership styles; construction reform; Ohio's collective bargaining legislation (Senate Bill 5) and its defeat through voter referendum; human resources audits; employment interviews and evaluations; and important human resources issues.

Since the Fall CPD Conference fell on Veterans Day this year, EFO held a special ceremony in honor of the U.S. veterans in attendance. Veterans were given American-made U.S. flag pins and were entered into a drawing for a flag flown over the U.S. Capitol. After the quartet "Sound House" sang the "Star Spangled Banner," Congressman Steve Stivers presented the flag to the drawing winner, Darrell Cipriany, PE, of Westerville.

Thank you to **American Electric Power** for sponsoring the Fall CPD Conference.

In December, 60 participants attended "Your Engineering Insurance Primer." Thank you to **Oswald Companies** for providing expert faculty. Participants learned how health care reform will impact engineering businesses; the financial management and human resources implications of new laws; benchmarking statistics; executive risk; fiduciary liability; and risk management strategies. Participants were given an actual engineering claim case study, which they evaluated with the help of the insurance professionals.



EFO held a special Veterans Day ceremony at the Fall CPD Conference in Columbus. Pictured are the U.S. veterans in attendance with Congressman Steve Stivers, front left, who came to present a flag flown over the U.S. Capitol. The flag was won by Darrell Cipriany, P.E., front right.

Professional Program

Engineers study values, persuasion and Level 5 leadership at 'Engineer As Leader'

In February, The Engineer As Leader seminar attracted 35 practicing engineers and students to Columbus. Professional engineers earned 10.5 CPD hours as engineering leadership expert James Dalton, CAE, helped participants develop their range of leadership skills. In a rich and dynamic presentation covering many topics, participants learned about persuasion via appealing to people's core values. Participants also engaged in an in-depth study on the Level 5 Executive, who, according to Jim Collins, contributor to the Harvard Business Review, "builds enduring greatness through a paradoxical combination of personal humility plus professional will."

Participants said, "This course covers territory that the mass-produced leadership seminars never do;" "This is powerful stuff;" and "I learned that there are new skills to help me to be a persuasive leader."



Discussing Level 5 leadership are (L-R) Del Smith, PE, of Rolls-Royce Energy, Tai Wong, PE, and Pete Curcio, PE, of Ariel Corporation.

Youth Program

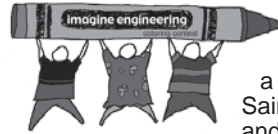
Allen East 2nd grader gets 'Imagine Engineering' win!

Miranda Kirkpatrick, a second grader at Allen East Primary School in Lafayette, placed first in the 13th annual Imagine Engineering Coloring Contest. For her efforts, Kirkpatrick received a telescope, the first place prize.

This year's program included an estimated 7,500 second grade participants. Over the winter, OSPE members visited classes and engaged students in discussions about Ohio's engineers. Afterward, the second graders were asked to draw pictures of PEs at work. Drawings were evaluated for prizes.



Allen East Primary School's Miranda Kirkpatrick (1st place) & David Louth, PE.



Joel Tobler, a second grader at Saint Mary Elementary School in Columbus, placed second in the contest and won a big screen microscope. Ethan Mescher of Saint Henry Elementary School placed third and won a MathShark skill-building game and calculator.

Youth Program

Ohio MATHCOUNTS benefits 13,500 students each year



Four Ohio middle school students took top individual honors at Ohio MATHCOUNTS in March: Clive Chan (first place) of Birchwood in Cleveland, Peter Tian (second place) of Columbus Academy, Shivam Sarodia (third place) of Hadley Watts in Dayton, and Kartik Dhinakaran (fourth place) of Lee Burneson in Cleveland. Participating in the state competition were 185 sixth, seventh, and eighth grade students. In May, the top four students advanced to the national finals in Washington, DC, where their national competition coach was Charles Debelak. Debelak was the coach of the Birchwood Middle School, which won the team competition at state.

Through its research with the national MATHCOUNTS Foundation, EFO now calculates that Ohio MATHCOUNTS benefits 13,500 students annually.



Left to right are EFO President Owen March, PE, Peter Tian, Kartik Dhinakaran, MATHCOUNTS Chair Leon Winget, PhD, PE, Shivam Sarodia, Coach Charles Debelak, Clive Chan, & OSPE President-Elect Bruce Larcomb, PE, PS.

2011 Schedule of Events

For details, please call EFO at 614-223-1177.

- Through February..... Imagine Engineering Coloring Contest
- February..... Local MATHCOUNTS
- February 3-4..... The Engineer As Leader, Columbus Airport Marriott
- March 3..... Scholarship Grading, Columbus
- March 10..... Ohio MATHCOUNTS, Columbus State
- March 16..... Board Meeting
- May 10-13..... National MATHCOUNTS, Orlando, FL
- June 1..... Annual Meeting, Cleveland Marriott East
- June 15..... Board Meeting
- September..... 21st Annual EFO Benefit Golf Outing

Earn 10.5 CPD Hours at The Engineer As Leader February 3-4, 2012

Call 1-800-654-9481 for immediate registration processing!



Fundraising

EFO Golf Outing raises \$7,000

The 2011 EFO Benefit Golf Outing was held at Bent Tree Golf Club in Sunbury and generated nearly \$7,000. Proceeds benefit the Imagine Engineering Coloring Contest, Ohio MATHCOUNTS, scholarships and the Engineers Leadership Institute.



The winning team included, from left to right, John Martin of Lotus Golf, Jason Francis, Jim Arnold, PE, and Golf Outing Chair Steve Day, PE.

In the morning, EFO held a 2.0 CPD hour seminar on "Ethics in Engineering," led by Bill Lhota, PE, PS, the president and CEO of the Central Ohio Transit Authority, as well as a board member for the National Institute for Engineering Ethics.

On the course, the winning team included Jim Arnold, PE, Steve Day, PE, Jason Francis, and John Martin. In second place was the team from the JDI Group, Inc., including Tom Blaine, Bob Buchwald, Hershel Erwin and Fred Tito.

Scholarships

Ohio's top engineering students awarded EFO scholarships

2011-2012 EFO New Scholarship Recipients

Cyril W. Neff, PE, PS,
Memorial Scholarship



James Crawford
Seville, Ohio
Ohio Northern University

Peter Peterson Fund
– University of Toledo
Scholarship



David Szymanski
Rossford, Ohio
The University of Toledo

OSPE Franklin County Chapter
Scholarship



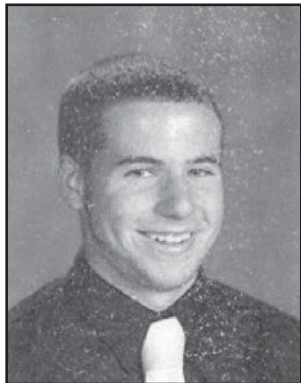
Achal Singhal
Columbus, Ohio
The Ohio State University

Raymond H. Fuller, PE,
Memorial Scholarship



Cody Gador
Cincinnati, Ohio
The Ohio State University

Melvin Bauer, PE, PS –
OSPE, N. Central Chapter
– Memorial Scholarship

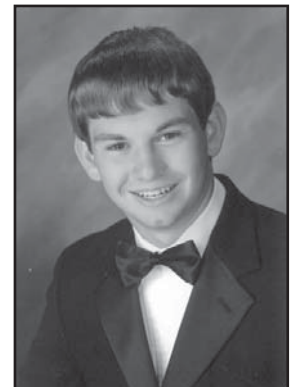


Caleb Miller
Bucyrus, Ohio
The Ohio State University

“Thank you for selecting me as the recipient of the Cyril W. Neff, PE, PS, Memorial-EFO Scholarship. I am looking forward to attending Ohio Northern University this fall. I plan to do my best so as to not let your contribution be made in vain. I hope to become an engineer and use what I have learned for the benefit of others. Thanks again for your assistance.”

*James Crawford, 2011-2012 Recipient,
Cyril W. Neff, PE, PS, Memorial
Scholarship*

Auxiliary to the Franklin
County Chapter of OSPE
Scholarship



Luke Sobota
Beavercreek, Ohio
The Ohio State University

EFO General Fund
Scholarship



Marcus Grimm
Salem, Ohio
University of Akron

SCHOLARSHIP RENEWALS:

Kohli and Kaliher, Inc.–Ohio Northern University–Scholarship:
Katherine Miller

Cyril W. Neff, PE, PS, Memorial Scholarship: Matthew Konderson, Lindsie MacPherson & Michael O'Brien

Peter Peterson–University of Toledo Memorial Scholarship: Matthew Hankenhof, Gretchen Hartley & Zachary Reaver

Systems Research Laboratories–Ohio University–Scholarship:
John Linser

Auxiliary to the Franklin
County Chapter of OSPE
Scholarship



Emma Schroder
Cincinnati, Ohio
The Ohio State University



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"Thank you," too, to our generous donors who have given through the NSPE dues renewal check-off option. Through the dues check-off, there were 19 EFO donors, eight General Fund Scholarship donors and six Chacey Scholarship Fund donors.

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ENGINEERS LEADERSHIP INSTITUTE

Ohio Society of Professional Engineers

University teams received honorable mentions.

University of Akron:
Engineering students power traffic flow information

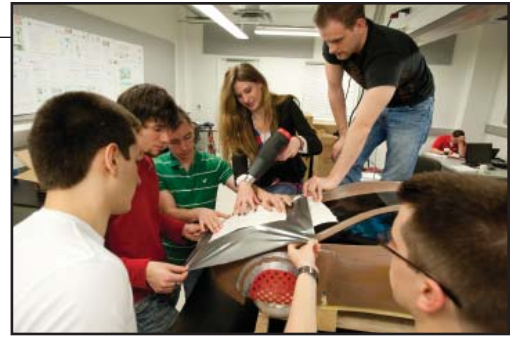
Electrical engineering students Tom Vo and Courtney Gras have been working to provide electrical power to traffic flow monitors in the state of Ohio. Dr. William Schneider of civil engineering is working with the state of Ohio to place monitors in several locations on the state's freeway system. The monitors use cell phone signals to determine traffic speeds and travel times, which may be posted on electronic signs to provide real-time traffic information. These monitoring devices run continuously using a small amount of power. With Dr. Tom Hartley in electrical and computer engineering, the students are developing a solar power system that will use microcontroller-based power electronics to track the maximum power out of the solar panels and store that energy in lithium-ion batteries. The power system is being optimized to provide

the needed power during the long grey winters of northeast Ohio, while also providing overcharge protection during the long hot summer days of southwest Ohio.

University of Dayton: Grant allows study of toxicity of nanoparticles found in common products

A University of Dayton biologist and a materials engineer have received a three-year, \$350,000 grant from the National Institutes of Health to study the harmful effects of microscopic particles found in common products such as socks, sunscreen, cosmetics, surgical scalpels, tires and lithium batteries. Assistant biology professor Yiling Hong and Khalid Lafdi, Wright Brothers Institute Endowed Chair in Nanomaterials, are researching the toxicity of manufactured nanoparticles on stem cells. Lafdi and Hong hope to identify precisely what makes a nanoparticle more or less toxic and how to make them safer.

"Nanotechnology has enormous potential for biomedical applications; however, we face a major challenge in understanding how nanoparticles affect our bodies and



Ohio State University aerospace engineering seniors in a capstone project apply a vinyl coating to their aerodynamic vehicle model. From left are Ivan Dusper, Zachary Webster, Greg Padgett, Elliot Howell, Jacob Allenstein and Nicholas Higgins. Photo: Ohio State Photo Services.

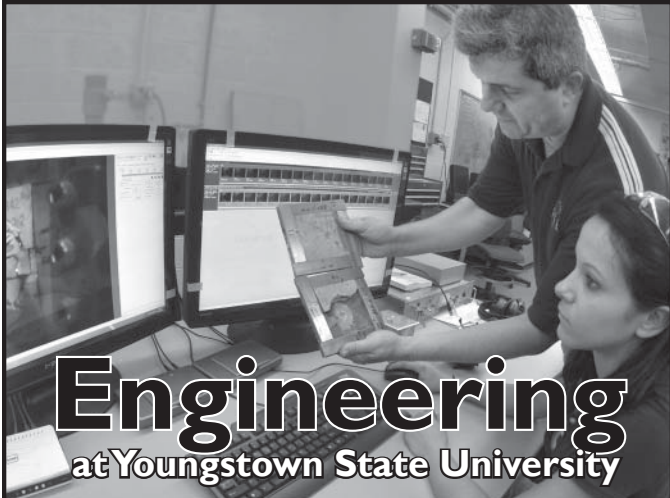
overall health," said Hong.

Some nanoparticles have toxic characteristics not present in larger forms of the same materials, such as silver or zinc oxide, Hong said. In previous studies, Hong and her colleagues have demonstrated that carbon nanotube and nanosilver particles can cause DNA damage to and sometimes the death of mouse embryonic stem cells.

Hong's lab plans to investigate three nanoparticle types most common in commercially available products: carbon, silver, and zinc oxide.

Lafdi, a leader in the field of carbon materials and inventor of Nano Adaptive Hybrid Fabric (NAHF-X), will focus on nanomaterials processing and their

See "Schools," page 9



- Chemical Engineering
- Civil Engineering
- Civil and Construction Engineering Technology
- Electrical Engineering
- Electrical Engineering Technology
- Industrial Engineering
- Mechanical Engineering
- Mechanical Engineering Technology



"At many universities, undergraduate students don't even get in the laboratories, let alone get close to the equipment. Here, they're encouraged to do that and encouraged to participate in research."

Arden Bement, Jr., Director of the National Science Foundation

web.ysu.edu/stem

Youngstown
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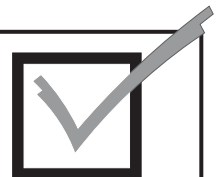
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surface chemistry.

University of Toledo:
Students design pedestrian
bridge in Honduras

Students from the College of Engineering at the University of Toledo (UT) traveled to the village of Los Sanchez, Honduras in October, 2011. Villagers had previously made a request to the UT chapter of Engineers Without Borders for a pedestrian bridge to safely cross a nearby, hazardous river during the rainy season. The preliminary design of the bridge was completed as part of the Civil Engineering Department's capstone design course in December, 2011. The group considered several unique challenges when completing the design including locally available materials and skilled labor. The bridge is expected to be built in 2012.

Wright State University: Students design robotic lawn mower

Ready, set, mow! Students at

Wright State University recently placed in the top three in the Eighth Annual Robotic Lawn Mower Competition. The robotic lawn mower is a multidisciplinary senior design project that employs several sensors and GPS navigation to mow a yard. It can sense and avoid obstacles such as the family pet, a fence, or a flower bed. A team of undergraduate students from various engineering and computer science fields works together to create the robotic lawn mower, which is also being adapted as an automatic field stripe machine for athletic fields.

Youngstown State University:
New institute will provide research
for shale natural gas industry

Youngstown State University is developing a new institute designed to educate professionals and provide research for the emerging multi-billion dollar shale natural gas industry in Ohio and Pennsylvania.

The YSU Natural Gas and Water



Undergraduate students at Wright State University recently placed in the top three in the 8th Annual Robotic Lawn Mower Competition. Photo: Wright State University.

Resources Institute will provide bachelor's degree level courses in science and engineering that will lead to an academic minor in gas technologies and also will provide research opportunities for industry focusing on analysis of water used in the shale gas extraction process. The new Institute will be located in YSU's College of STEM.

The Institute's educational component will establish an academic minor in natural gas and water resources for students interested in careers in professional and technical fields directly related to shale gas and other unconventional resources, or the petroleum industry in general. The school expects to complete the development of the minor by next fall. The first students in the new minor in natural gas and water resources could graduate as early as May 2013.

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** Amounts listed above reflect total dues savings for Licensed Members and Graduate/EI Members. Recent graduates should call 1-800-654-9481 (or 614-223-1144) for discounts.

LEGISLATIVE UPDATE: 129TH OHIO GENERAL ASSEMBLY

To follow is a summary of Ohio Statehouse legislation OSPE is monitoring in the 129th Ohio General Assembly:

CONTAMINATED SITE REMEDIATION, House Bill 10 (Sears)	To authorize refundable tax credits through 2017 for the completion of a voluntary action to remediate a contaminated site & for the return of such sites to productive use & to exempt persons through 2017 who have been issued covenants not to sue under the VAP for certain fees & penalties for 1 year after the issuance of such a covenant.	Status: Third hearing in House Ways & Means, 02/23/11. Hearing schedule for 03/02/11; no testimony.
SEWAGE PLANS, House Bill 32 (Amstutz)	To exempt from the Professional Engineers & Surveyors Law the preparation of plans or drawings for a sewage treatment system or components of a system & measurements concerning such a system or components that are necessary to comply with the Household & Small Flow On-site Sewage Treatment Systems Law.	Status: Passed House. All testimony heard in Senate Agriculture, Environment & Natural Resources, 11/15/11. OSPE opposes bill in current form.
TURNPIKE COMMISSION, House Bill 40 (Damschroder)	To make the Ohio Turnpike Commission responsible for major maintenance & repair & replacement of grade separations at intersections of any turnpike project with county & township roads.	Status: Third hearing in House Transportation, Public Safety & Homeland Security, 03/02/11.
PERFORMANCE BUDGETS, House Bill 81 (Snitchler, Rosenberger)	To require performance budgeting by most state agencies.	Status: Introduced in House & referred to State Gov't & Elections, 02/02/11. Last hearing, 02/15/11.
LABOR REQUIREMENTS, House Bill 102 (Young)	To prohibit state agencies from requiring or prohibiting certain labor requirements as a condition of performing public works & to prohibit the appropriation of state funds for public works when political subdivisions require or prohibit certain labor requirements.	Status: Amended bill reported from House Commerce & Labor, 05/11/11.
TRANSPORTATION BUDGET, House Bill 114 (McGregor)	To make appropriations for programs related to transportation & public safety for the biennium beginning July 1, 2011 & ending June 30, 2013.	Status: Signed by governor & effective 03/30/11.
OIL & GAS LEASING, House Bill 133 (Adams, J.)	To create the Oil & Gas Leasing Commission, to establish a procedure for leasing land owned or under the control of state agencies for oil & gas production in order to provide funding for capital costs for the agencies, & to exclude nature preserves from drilling.	Status: Signed by governor, 06/30/11. Effective in 90 days.
TRANSPORTATION PARTNERSHIPS, House Bill 151 (McGregor)	To authorize the Department of Transportation to enter into public-private partnership agreements.	Status: Referred to House Transportation, Public Safety & Homeland Security, 03/15/11.
BIENNIAL BUDGET, House Bill 153 (Amstutz)	To make operating appropriations for the biennium beginning July 1, 2011, & ending June 30, 2013, & to provide authorization & conditions for the operation of state programs.	Status: As signed by governor, 06/30/11, the engineers & surveyors board is now on biennial renewal and DAS is to recommend gov't reorganization, including less state agencies. Watch rule-making process.
PROFESSIONAL LICENSURE, House Bill 169 (Williams, S.)	To revise the laws governing issuance of certain professional licenses.	Status: First hearing in House State Gov't & Elections, 04/05/11.
PUBLIC CONTRACTS, House Bill 176 (Beck)	To limit the magnitude of change orders on public improvements required to be competitively bid.	Status: Second hearing in House Commerce & Labor, 06/08/11.
EMPLOYMENT APPLICATIONS, House Bill 230 (Williams, S.)	To prohibit employers from including on an employment application any question concerning whether an applicant has pleaded guilty to or been convicted of a felony.	Status: Hearing in House Commerce & Labor, 06/01/11.
BUILDING STANDARDS, House Bill 306 (Pillich)	To require a building or structure constructed using state capital budget moneys to adhere to certain energy efficiency & building standards & to encourage the use of Ohio-produced products.	Status: Referred to the House State Government & Elections, 09/13/11.
SMALL BUSINESS RULES, Senate Bill 2 (Hughes)	To adopt a new small business rule review procedure.	Status: Signed by governor, 03/04/11. Effective in early June.
PERFORMANCE AUDITS, Senate Bill 4 (Schaffer)	To require performance audits of most state agencies, to loan funds to state agencies & local public offices to pay for performance audits, & to make an appropriation.	Status: Signed by governor & effective, 04/05/11. (House Bill 2 was companion legislation.)
COLLECTIVE BARGAINING, Senate Bill 5 (Jones)	To make various changes to laws concerning public employees, including collective bargaining, salary schedules & compensation, layoff procedures, & leave.	Status: Signed by governor, 03/31/11; effective at end of June. Voters defeated legislation, 11/08/11.
GOV'T REGULATIONS, Senate Bill 11 (Cafaro)	Among other things, to enact the Common Sense Regulation Act to improve state agency regulatory processes, especially as they relate to small businesses.	Status: Referred to Senate Gov't Oversight & Reform, 02/02/11.
SMALL BUSINESS, Senate Bill 12 (Kearney)	To generally require that state agencies set aside a certain amount of purchases for which only small business enterprises may compete.	Status: Referred to Senate State & Local Gov't & Veterans Affairs, 02/02/11.
LABOR REQUIREMENTS, Senate Bill 89 (Jordan)	To prohibit state agencies from requiring or prohibiting certain labor requirements as a condition of performing public works & to prohibit the appropriation of state funds for public works when political subdivisions require or prohibit certain labor requirements.	Status: Referred to Senate Insurance, Commerce & Labor, 03/08/11.
WATER REPORTS, Senate Bill 96 (Stewart)	To require a community water system's annual report to its customers to include info re the amount of water lost by the system during the transmission of water between the source waters utilized by the system to the consumers serviced by the system.	Status: First hearing in Senate Agriculture, Environment & Natural Resources, 04/05/11.
OIL & GAS DRILLING, Senate Bill 212 (Skindell)	To establish requirements governing well stimulation, brine disposal, & water that is used in the drilling & operation of oil & gas wells on state land, including a requirement that oil & gas permittees pay a five per cent overriding royalty for each well that is stimulated.	Status: Referred to Senate Agriculture, Environment & Natural Resources, 09/20/11.
OIL & GAS DRILLING, Senate Bill 213 (Skindell)	Establishes a moratorium on horizontal stimulation of oil & gas wells until the USEPA publishes a report containing the results of a study of the relationship of hydraulic fracturing to drinking water resources & the Chief of the Division of Oil & Gas Resources Management issues a report analyzing how Ohio's rules address issues raised in the USEPA report.	Status: Referred to Senate Agriculture, Environment & Natural Resources, 09/20/11.
RENEWABLE ENERGY, Senate Bill 242 (Patton)	To specify that renewable energy resources do not have to be converted to electricity to receive renewable energy credits.	Status: Referred to Senate Energy & Public Utilities, 11/09/11.

LEGISLATIVE UPDATE

by Jeff Kennedy, P.E., Vice President, OSPE Legislative & Government Affairs



In an effort to protect public, OSPE coalition meets with Sen. Cliff Hite on House Bill 32

Also, OSPE members work to re-draft faculty licensure legislation & Jeff Kennedy, PE, contemplates the future of STEM education

An area of continuing concern and legislative activity remains House Bill 32, sponsored by Rep. Ron Amstutz (R-Wooster).

Recently, John Troy, PE, FNSPE, and Dave Pritchard, PE, of the Ohio Society of Professional Engineers (OSPE) and Jim Troike, PE, past president of the County Sanitary Engineers Association, met with Sen. Cliff Hite (R-Findlay), chair of the Senate Agriculture, Environment and Natural Resources Committee. Sen. Hite has been willing to listen to OSPE and its coalition as we have discussed the possible hazards to the public of diminishing the role of PE's on the design of small flow non-residential systems not exempted by current Ohio law.

We continue to encourage our members who have expertise in such systems to contact Sen. Hite and your own state senator. Let them know, in laymen's terms, why an amendment to House Bill 32 – one encouraging the involvement of PE's – is desirable for Ohio's citizens.

Work also continues between OSPE members Nils Nilsson, PhD, PE, and Dennis Irwin, PhD, PE, to develop an effective compromise bill to license university instructors who teach advanced engineering subjects.

In other legislative news, a bill sponsored by State Rep. Jay Goyal (D-

Mansfield) seeks to encourage college graduates in STEM (science, technology, engineering and mathematics) fields to work in Ohio. House Bill 227 proposes state income tax credits for STEM graduates who work in Ohio which authorizes municipalities to also provide income tax credits as an added incentive. Rep. Goyal is an industrial engineering graduate of Northwestern

21, Nov. 14, 2011) authored by Reihan Salam and Tino Sanandaji, included data projecting that by 2050 the current racial and ethnic majority will only be 46 percent of the total U.S. population. In order for America to continue to lead the world in technology and engineering, a more ethnically and racially diverse group of engineers than we have now will need to be educated in STEM fields.

Reform of the current education system will need to take place, especially in urban school districts, which tend to consume more money per pupil while producing some of the highest drop-out rates. According to the article, the U.S. spends over \$1 trillion per year on education, which is greater than eight percent of our national income. Although the amount spent per pupil has increased 250 percent since 1970, standardized testing scores have not increased. So, money alone is not the solution, or at least how it has been spent is not doing the job.

Allowing school administrators to reward and advance quality teachers, while eliminating less capable teachers, may be a portion of the solution. Private experimental schools in major urban areas demonstrate that minority students in underprivileged neighborhoods can be just as academically successful as their suburban peers. The sad part of those experimental schools is that they are entered only by lottery. Those who need and desire such schools the most are financially unable to be admitted otherwise.

Improving the standard of living of more Americans depends upon the expansion of our economy into new, technical areas – the research, development and marketing of new devices to better our lives. Those new, as-yet-undeveloped technical innovations will need to be brought to market by our current crop of students and their children.

STEM will need to be an area of academic emphasis well into the future, in schools which are more effective than many we have presently, especially in our urban areas.

"...contact Sen. Hite and your own state senator. Let them know...why an amendment to House Bill 32 – one encouraging the involvement of PE's – is desirable for Ohio's citizens."

University who works for his father's business, Goyal Industries, in Mansfield. (See photo of Rep. Goyal, page 13.)

Looking long-term however, these current legislative efforts may be insufficient in comparison to what will be needed to train future Ohio engineers, who will need to be drawn increasingly from ethnic and racial minorities. "Closing the Achievement Gap," a recent *National Review* article (Vol. 63, No.

Design associations air concerns about House Bill 32 at Joint Societies Meeting

The annual Joint Societies Meeting took place on November 21 at the Holiday Inn Columbus-Worthington. Gathering to discuss current issues related to the design professions were Ohio Society of Professional Engineers (OSPE) president Bruce Larcomb, PE, PS, FSFPE, and OSPE secretary Howard Jones, PE; along with representatives from Professional Land Surveyors of Ohio, Ohio State Board of Registration, American Council of Engineering Companies of Ohio, and the County Engineers Association of Ohio.

While many topics were discussed, House Bill 32, which is sponsored by Rep. Ron Amstutz (R-Wooster), garnered the most interest among meeting participants. Most in attendance registered their concerns regarding this legislation, which exempts from the Professional Engineers and Surveyors Law the preparation of plans or drawings for a sewage treatment system, including its components and its measurements necessary to comply with the Household and Small Flow On-site Sewage Treatment Systems Law.

OSPE announces Spring CPD Conference & other program dates

Mark your calendar with the following program dates to participate in the upcoming OSPE Spring CPD Conference, Certificate Ceremony, various Engineers Foundation of Ohio (EFO) programs, and local Engineers Week (E-Week) programs.

OSPE Spring CPD Conference & Annual Member Meeting: June 1-2

The Columbus Airport Marriott is the site for the OSPE Spring CPD Conference, which will be worth a minimum of 10.0 CPD hours. Franklin County Chapter is planning a great program; expect to see educational presentations about Ohio's oil

and gas industry, including fracking. A technical tour, entertainment and spouse programs are also being planned. Call OSPE at 1-800-654-9481 (Ohio toll-free) or 614-223-1144 for details.

Ohio Engineering & Surveying Certificate Ceremony: March 17

OSPE members are needed to host the upcoming ceremony and welcome new registrants. Call OSPE at 1-800-654-9481 or 614-223-1144 for an assignment.

EFO's Imagine Engineering Program: Through February

800-654-9481 or 614-223-1177 for details.

EFO's Scholarship Grading: March 3

Volunteers are needed to help grade scholarship applications. Call EFO at 1-800-654-9481 or 614-223-1177 for details.

EFO's Ohio MATHCOUNTS: March 10

EFO needs proctors, scorers and registration volunteers for Ohio MATHCOUNTS, March 10, at Columbus State Community College. Call EFO at 1-800-654-9481 or 614-223-1177 for details.



E-Week: February 19-25

Now in its 61st year, E-Week allows OSPE chapters to celebrate the positive contributions engineers make to society, host various student programs, and participate in local banquets.

Akron District Chapter will participate in the Akron Area E-Week Banquet on **February 23** at Emidio & Sons in Cuyahoga Falls. The presentation will

feature the "Engineers' Challenge," an interactive game show style program. For tickets, contact Brent Sisler, PE, at 330-864-7555.

Canton Regional Chapter will participate in the Canton Joint Engineering Council banquet on **February 22** at Skyland Pines in Canton. The program will include a presentation by Gary Doll, FASM, the Timken Professor of Surface Engineering at the University of Akron. For tickets, contact Jennifer Arn of M-E Companies at 330-491-9000.

Franklin County Chapter will participate in the Central Ohio E-Week lunch on **February 23** at the Bridgewater Conference Center in Powell. Bryan Palaszewski from NASA Glenn Research Center at Lewis Field will be the speaker. Register at <http://ohio.apwa.net/events/8509/>.

Mahoning Valley

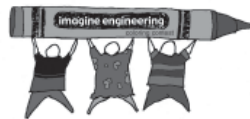
See "Calendar," page 13

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- 4.0 CPD Hours via NSPE – free!
- Refresher Courses
- OfficeMax Discounts
- 5%-10% Health Insurance Discounts
- Errors and Omissions Insurance Discounts
- UPS Shipping Discounts
- Sequent Payroll & Personnel Outsourcing
- Workers' Compensation Group Discounts
- Seals & Embossers
- Members-Only Note Pads
- 10% off CareerBoard
- 10% off Enterprise Membership
- 30% off Programs for OSPE Members
- 50% off Ohio Programs for Enterprise Members
- P.E. License Plate Frames

Call OSPE at 1-800-654-9481 (Ohio toll-free) or 614-223-1144 details.



EFO's Imagine Engineering has kicked-off with 90 schools registered. OSPE members

are needed for in-class presentations to explain what engineers do. Students may enter a coloring contest to demonstrate what they have learned. Call EFO at 1-



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OSPE emphasizes member recruitment & retention *Congratulations, Franklin County Chapter for earning STAR Award*

To date this fiscal year, the Ohio Society of Professional Engineers (OSPE) has 64 new members.

In an effort to bring in new members, OSPE is engaging in various direct mail campaigns and preparing recruitment efforts for the upcoming Ohio Engineering and Surveying Certificate Ceremony on Saturday, March 17. The Certificate Ceremony has traditionally served as OSPE's number one program for bringing in new members.

In the coming months, OSPE will experiment with a new model for the OSPE

New Member Orientation, which serves to acclimate members to the numerous benefits of the society. New members will leave their online orientations equipped with resources to save money on the products and services they need to protect their licenses and grow their businesses while becoming stronger engineering leaders.

In other membership news, the OSPE Board of Directors has congratulated the Franklin County Chapter for earning four stars in the STAR Chapter recognition program for fiscal year 2011. To gain STAR Awards, chapters must show participation

in specified member-retention programs. Franklin County Chapter has earned STAR Awards more often than any other chapter.

"Thank you, Franklin County Chapter," said Dave Dexter, PE, OSPE president, 2010-2011. "You make us proud!"



Howard Jones, PE, (left) receives the four STAR Award from Dave Dexter, PE, OSPE president, 2010-2011.

Leadership 'Bootcamp' proves itself a victory

The 2011 Ohio Society of Professional Engineers' (OSPE) and Engineers Foundation of Ohio's (EFO) Leadership Retreat had a "Bootcamp" theme. Twenty-one people attended this year's event on September 9 at the Cherry Valley Lodge in Newark. OSPE chapters sent representatives to gain important knowledge about "Energizing Your Membership Troops," "Managing Your Chapter Unit for Victory," and "Financing Your Chapter Unit." Attendees included chapter presidents and OSPE and EFO board members.

Two CPD hours were available for participants. Educational presentations included "CPD Update" by State Board of Registration Executive Director John Greenhalge, MBA, and "Statehouse Legis-

lative Update" by John J. Troy, PE, FNSPE.



In keeping with the Retreat's "Bootcamp" theme, EFO President Russ Critelli, PE, (left) and OSPE President Bruce Larcomb, PE, (center) receive patriotic ball caps from Executive Director Tim Schaffer.

Welcome, new OSPE members

OSPE is pleased to welcome these 15 new members from November 30, 2011 through January 9, 2012:

Canton Chapter

Terry Varn, P.E.

Cincinnati Chapter

Aaron Lee Crow
 Ralph W. Slone, P.E.

Dayton Chapter

Matthew E. McAllister

Franklin County Chapter

David Bryant, Jr., P.E.
 Gregory Comfort, P.E.
 K.V. Hari Krishna, P.E.
 Dean Panik, E.I.
 Zachary Stilp
 Isaac Zimmer, M.B.A., P.E.

Lake Erie Chapter

Frank Villanti, P.E.

Mahoning Valley Chapter

Robert Kruppa, P.E.

Maumee Valley Chapter

Jim Augsburger

Northeast Chapter

Brian M. Widowski, P.E.

Tuscarawas Valley Chapter

Daniel Edward Boltz, P.E.

OSPE Legislators of the Year, 2010 & 2011



OSPE Vice President of Legislative & Government Affairs Jeff Kennedy, PE, (left) presents the 2010 OSPE Legislator of the Year Award to Rep. Jay Goyal (D-Mansfield), former Majority Whip of the Ohio House of Representatives during the 128th Ohio General Assembly (OGA). A graduate engineer, Rep. Goyal is known as a champion for education and the economy.



At the OSPE Spring CPD Conference, Dave Dexter, PE, CPD, FASPE, OSPE president, 2010-2011, presents the 2011 OSPE Legislator of the Year Award to Rep. Tom Letson (D-Warren), former Majority Whip of the Ohio House of Representatives during the 128th Ohio General Assembly (OGA). Rep. Letson championed OSPE's faculty licensure legislation in the 128th OGA.

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Chapter will host its annual MATH-COUNTS Banquet, **February 23**, at A La Carte, Canfield. For details, call Jack Ritter, PE, at 330-788-7992.

Toledo Chapter will participate in the Technical Society of Toledo's "Engineer of Year Lunch" on **February 20** and evening banquet on **February 23**. The speaker at the banquet will be William H. Gerstenmaier, associate administrator for space operations at NASA. Both meals will occur at the Hilton Garden Inn, Perrysburg. For tickets, contact Lisa Aller at 419-460-9995.

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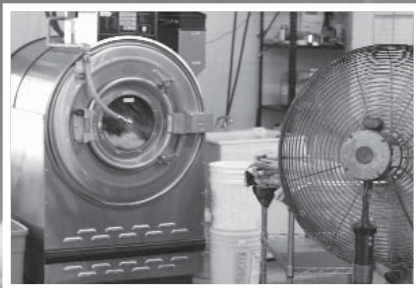
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