

## Industry & Technology Welcomes Dr. Chris Erickson



Dr. Chris Erickson

The Department of Industry and Technology welcomes Dr. Chris Erickson. An alumnus of Millersville, Erickson brings a rich background full of diverse experiences to the metals program. Dr. Erickson's first acquaintance with the department was in the early eighties when he earned his BS in technology education after having served as a Gunners mate in the U.S. Navy. He recently completed his doctoral studies at Immaculata University in 2007. Outside of the department, Erickson keeps himself busy in his workshop working on his boat Ellie, furthering his interest in industrial education and doing a little residential contracting. Dr. Erickson lives in a log cabin that he, his wife Marge and friends worked to build.

The department wishes Dr. Erickson every success in his current endeavors.

## Science, Technology, & ME! Piquing Girls Interest in Technology



Science, Technology, & ME!

The third annual ST&ME! will be offered on Saturday, April 25, 2009. The program is coordinated by Dr. Sharon Brusic of the Department of Industry. It aims to introduce middle and high school girls to opportunities in science, technology, and engineering related careers and challenges.

This day-long event will kick off with a welcome message by Dr. Francine McNairy, president of Millersville University. The keynote address will be delivered by Nancy Hopkins-Evans, of the Philadelphia School System.

After the preliminary welcoming, the girls will be divided into interest sessions. These sessions will focus on topics like electronics, the environment, communication, geology, etc. The sessions are intended to be hands-on, and the girls leave with a project or object they created themselves.

The sessions are conducted by female role models from the University, local schools, or industry. Female college student mentors are on hand to serve as assistants to help out. There are also concurrent sessions for parents to attend on topics like Internet safety and college funding and financial aid. Parents will also have the opportunity to explore the Millersville admissions process.

For more information, please contact Dr. Sharon Brusic at Sharon.Brusic@millersville.edu

## What does Penn State, Millersville, and Nanotechnology have in common?

by: Daniel W. Cavanaugh

Here at Millersville University (MU), students are afforded many opportunities. Although MU is outstanding in its own right with numerous distinctions, one of the truly great aspects of MU is its strong relationship with the rest of the Commonwealth of Pennsylvania. One of these amiable relationships is between MU and Penn State University's Center for Nanotechnology Education and Utilization (CNEU). The above mentioned partnership is the subject of this article. Since we already know about MU, let me first explain the what and why of the CNEU before I deal with the partnership we have with them.

Nanotechnology, as the *nano* prefix indicates, is the field that studies matter and phenomena at the one billionth of a meter (e.g. nanometer) regime. The goal of those in nanotechnology is to fabricate structures with features smaller than 100nm. To put this in perspective, the paper this article is printed on is about 100,000 nanometers thick; or to say it another way, if you lined up just ten hydrogen atoms in a row that would be one nanometer!

Nanotechnology is one of the next big high tech growth industries and has even been called the next industrial revolution. The NSF (National Science Foundation) estimates that there will be 2 million skilled workers needed to fill the positions in nanotechnology related areas by 2015. In order to maintain America as a leader in technology and innovation the government through the NSF is actively pursuing bright, talented, and motivated individuals to join the new growing field of nanotechnology. The NSF's efforts include grants, regional nanotechnology sites like the CNEU, and information distribution like NNI (National Nanotechnology Initiative).



In the yellow safe light, a group of NMT students is imaging a common wasp stinger with an electron microscope at Penn States NNIN cleanroom.

Here in the Department of Industry and Technology at MU we are doing our part to prepare students for a future in nanotechnology by partnering with the CNEU to form degree programs in nanotechnology— Nanofabrication Manufacturing Technology (NMT). Students in the NMT program have the option of either an Associate of Technology or Bachelor of Science. Both of these degrees incorporate one full semester (Fall, Spring, or Summer) of study at Penn State University's University Park

campus in State College, PA. During this semester at Penn State, called the Capstone Semester, students from all across PA get tons of hands-on lab experience in cleanrooms with multi-million dollar equipment and are taught by experts in nanotechnology.

Although the Capstone Semester is a large part of what the CNEU does, it is also actively helping to educate the general public, industry, and students about nanotechnology in other ways. For example the CNEU will be hosting their *Nano Days at Penn State* this April 4<sup>th</sup>. The *Nano Days at Penn State* is a free event where the CNEU invites students, their families, and educators to take tours of the labs at Penn State and learn about career opportunities in nanotechnology. The CNEU has a number of additional activities like educator workshops, remote access labs, etc. to help educators and students alike learn more about this new and fast paced field of interest.

For more information about the NMT program at Millersville, the CNEU and their events, please contact:

Daniel Cavanaugh, CNEU Student Advocate  
Dr. Kenneth DeLucca, NMT Coordinator (MU)  
Jamie Houseknecht, Outreach Coordinator (PSU)

dwcavana@marauder.millersville.edu  
Kenneth.DeLucca@millersville.edu  
juh147@enr.psu.edu



CNEU staff, Amy Brunner, demonstrates lithography techniques in Penn State's NINN cleanroom.



Daniel Cavanaugh is pursuing a double major in technology education and nanofabrication manufacturing technology. He is currently serving as the student advocate for the CNEU at Millersville University of Pennsylvania.

## New Technical Option Continues to Evolve - Construction Technology

One of the newer options in the Industrial Technology major is construction technology. Developed in response to feedback provided by local industry and the Industrial Technology Advisory Council, the construction option provides students with the knowledge and skills needed for careers in construction technology. Students have experiences with computer-aided design, architectural design, blueprint reading, materials, processes and methods. Management issues like planning, scheduling, estimating, and contracting are also examined.

As technical options are introduced to the major and begin to grow, new classes are planned, written, and offered. This semester, a new class called *Construction Project Management* is being offered. This course focuses on managing a construction project and examines a range of pertinent topics like contract development, estimating, and subcontractor management. Modern tools like cost estimation software and scheduling software are available for students to use. Students are also shown how to develop their own tools for scheduling and estimating by using a popular office suite spreadsheet program.

Dr. George Kerekgyarto has been tasked to teach the course for the first time this spring. Dr. Kerekgyarto explains, "The Construction project management class begins with understanding the various types of contracts and who is responsible for ownership. The course visits the various legal aspects of the construction industry and studies several case key examples. Reading blueprints is an integral part of the class, making sure students understand the complexity of prints and how to conduct estimates based on prints."

"As the course progresses students begin to focus on takeoffs, bidding, cost analysis of construction projects," continues Kerekgyarto. "Assignments include the complete bid package for a residential home, in-depth examination of a large commercial building project, and an exercise in writing a contract. The second half of the course focuses heavily on large commercial construction projects, time lines, cost analysis and deadlines."

Local industry is taking notice and demonstrating support for the young technical option. Before spring break, Ms. Debbie Deisley, accounting manager for Benchmark Construction, came in and gave an informal talk to the students. Ms. Deisley discussed issues related to cost accounting for construction projects and provided example rich insights on various other issues. She then opened up the floor for a question and answer period with the students. The class session was scarcely long enough to cover all of the ideas raised.

The Department of Industry and Technology has eight technical options available at both the bachelor's and associate's degree levels. The options are CADD technology, graphic communication technology, construction technology, electronics/control systems technology, general industrial technology, manufacturing technology, mechanical technology, and nanofabrication manufacturing technology. If you would like more information, please visit the Industry and Technology Web site at <http://www.millersville.edu/itec>.



*Project management students examine residential blueprints.*

## Graphic Communication Option Received Major Software Gift

Dr. Mark Snyder, industry and technology, recently received a gift of ArtiosCAD software, valued at \$442,700, from Esko Graphics, Inc. The software provided by Esko Graphics includes industry-standard applications for the structural design of paperboard and corrugated packages.



*Seniors TJ Remaley and Seth Tucker output a design from ArtiosCAD.*

"I was surprised at the size of the gift and the amount of software donated," said Snyder.

He requested 25 seats of ArtiosCad Designer software, but received the whole suite, which includes eight different applications commonly used in the printing and packaging industries.

The suite of ArtiosCAD Design Modules are among the most popular structural design software applications used for packaging design. The software provides dedicated tools specifically designed for packaging professionals involved in structural design, product development, prototyping and manufacturing. Esko Graphics' gift is "excellent for preparing students for the large printing and packaging industry that contributes to the regional economy," explained Snyder.

After receiving a separate \$40,000 grant from the International Corrugated Packaging Foundation (ICPF) in 2007, Snyder kept in steady contact with Esko Graphics, which contributed the new gift. The grant from the ICPF was for the purchase of equipment to be used in the development of a packaging curriculum. Esko Graphics manufactures software that interfaces with the Gerber Innovations/Datatech samplemaker/plotter table that was provided through the ICPF grant.

Introducing students to this software is a critical part of the packaging curriculum that Snyder is developing as part of the graphic communication option in the Department of Industry & Technology. As Snyder explained, "few schools of Millersville's size receive software gifts of this magnitude." The University will now be able to produce ITEC Graphic Communication graduates who are prepared for professional careers in packaging.

## Accreditation and Program Updates

During 2008, the Industrial Technology and Occupational Safety and Environmental Health programs were examined by their accreditation organizations and received full approval. The process of accreditation involves meticulous scrutiny of all aspects of each program, including curriculum, facilities, faculty, students, administration, assessment strategies, campus support services and resources. The process was aided by the participation of many faculty, students, staff and the advisory committees.

Accreditation is an important aspect of the Department's continual improvement program and achieving accreditation ensures students that they are getting the best quality education. The National Association of Industrial Technology (NAIT), now known as the Association of Technology Management and Applied Engineering (ATMAE), accredits the Industrial Technology program. The Applied Science Accreditation Commission of the Accrediting Board of Engineering Technology (ABET) accredits the OSEH program.

Looking towards program development, the faculty met in the boardroom of the Antique Automobile Club of America's Museum in Hershey, PA, for an all-day retreat. The retreat was designed to provide an opportunity to plan for the future in an atmosphere conducive to open expression of ideas and out-of-the-box thinking.

Dr. Richard Frerichs, Educational Foundations Faculty Emeritus, served as facilitator for the retreat and kept the faculty on task and focused throughout the day. Work began early with an assignment completed during the fifty-minute trip to Hershey. Upon arrival, faculty engaged in discussions about our department's mission, vision and the identity of our programs, particularly as perceived by the lay population. After a short break for lunch and an opportunity to explore the museum exhibits, faculty spent the afternoon examining current curriculum with the goal of detecting and eliminating redundancy and identifying program needs. In all, the retreat was deemed a very productive use of time and resulted in an action plan that faculty are pursuing.



## Graduate Studies

by: *Dr. Tom Bell*

The Graduate program for Technology Education in the Department of Industry and Technology is in the process of a 5-year program review. Recent developments concerning the review have included collecting data from current graduate students and surveying their needs. A Technology Education graduate student focus group was assembled and asked questions specifically addressing the various issues confronting graduate students and the EDTE program. The focus group was facilitated by the Graduate School Dean, Dr. Victor DeSantis. Results of the focus group will help guide the future direction of the program. Reflecting on the past five years since the last program review, the EDTE Graduate Program has graduated 27 Masters of Education degrees. Recruiting new students to the program has proven to be a challenge and continues to be a priority to grow the program. Since the last program review the department has added four new graduate faculty members. These include Dr. Sharon Brusic, Dr. James LaPorte, Dr. Scott Warner and Dr. Mark Snyder. Their collective expertise and research interests will enhance our ability to serve our graduate students. For additional information or questions concerning our graduate program feel free to contact me.



## Occupational Safety &

by: *Dr. Dan Anna* **Environmental Health**

As the end of the spring semester approaches, many of the OSEH students are preparing for summer internships (and for the subsequent graduation). The internship program is a vital part of the OSEH curriculum and the preparation of students for entry into the safety and health profession. All OSEH students are required to complete a full-time, semester long internship prior to graduation. With few exceptions, the internship is the final requirement that students complete. Interns are placed in the fall, spring and summer semesters, but the highest numbers are during the summer.

Over the years nearly every type of business, industry, agency and organization has participated in the internship program. Many of these employers have long recognized the value for both the student and the company. Although there are some "regulars" that hire interns during at least one semester per year, many others hire only occasionally. Regardless of the frequency, there are a few expectations for every participating company:

- The company will provide a broad based experience that involves the student in as many safety, health and environmental aspects as possible. The employer is responsible for developing the job responsibilities and expectations, but we can provide input and guidance to help ensure that the experience is mutually beneficial to the company and the student.
- The student will be supervised and mentored by an active safety and health professional. Since the internship is part of the program curriculum, it is important for the student to have the opportunity to learn from a professional on the job.
- The supervisor will provide midpoint and final written evaluations and be willing to meet with the faculty supervisor a few times during the semester. Each student is assigned a faculty internship supervisor that will make planned site visits during the experience to discuss the progress of the internship. These visits have been a very positive part of the internship process since they help to ensure that the value to the student and to the company is at the maximum level.

Placement of interns has always been a challenge, but the changes in the economy have brought some additional concerns. We are always looking for companies that would like to participate in the internship program. The process is simple, the cost is low, the value is high, and the benefits are priceless. Anyone interested in learning more about the internship program is welcome to contact me directly.



## Industrial Technology

by: *Dr. John Wright*

What is Industrial Technology? It is the combination of three different core elements: (1) Leadership/Management, (2) Engineering/Design and (3) Technology/Hard Skills. Recently, The National Association of Industrial Technology (NAIT) changed its name to The Association of Technology, Management, and Applied Engineering (ATMAE).

For over 40 years, the Association tried to promote the Industrial Technology brand, but the terminology never really caught on. That is not to say that it did not grow and that employers do not hire our graduates. We did grow to over 1400 members nationwide establishing over 80 accredited programs across the nation. Our baccalaureate program graduates have been extremely employable in industry as technical managers and applied engineers, but not as industrial technologists. Why did the Association change its name? To build a better brand - one that is more contemporary with today's terminology.

So if ATMAE now has removed the industrial technology terminology from its name, what does that mean for us at the local level - those university programs like Millersville that house an Industrial Technology program? Well, even though the Association is ramping up its new marketing and re-branding efforts, it currently does not require all programs to change their program names. Rather, ATMAE's Board of Accreditation has decided to leave the program name decision at the local level. The markets vary across the United States, and as long as the educational programs meet the curricular guidelines established by ATMAE's Board of Accreditation, its program name may include options such as Technology Management, Applied Engineering, Industrial Management, Industrial Technology, Engineering Management, etc. Technology degree names are likely to still be relevant for many of ATMAE's national two-year associate degree names.

So should we at MU change the name of our program? What should it be? Do we become an early adopter of the new terminology and lead the state and region, or would it be better to wait and see? It is my opinion that Applied Engineering will soon replace the old Industrial Technology name. As I write this column, I know of a multitude of schools that are considering the implications of applied engineering. What is the difference between engineering, engineering technology, and applied engineering you might ask?

According to the National Society of Professional Engineers, "[e]ngineering and engineering technology are recognized as distinct points on the technical occupational spectrum. For example, ABET's [Engineering Accreditation Commission] accreditation criteria defines engineering as the profession in which a knowledge of the mathematical and natural sciences gained by study, experience, and practice is applied with judgment to develop ways to use economically the materials and forces of nature for the benefit of mankind. Engineering technology is defined as that part of the technological field that requires the application of scientific and engineering knowledge and methods combined with technical skills in support of engineering activities; it lies in the occupational spectrum between the craftsman and the engineer at the end of the spectrum closest to the engineer. In other words, the engineer is the person who conceives the design, while the engineering technologist is the person who implements it."

Applied Engineering, however, is the blend of management, engineering, and technical skills that enable an individual to not only implement an engineer's design, but to manage the process of that implementation. Applied Engineering degrees require a management core. Job titles such as manufacturing engineers, process engineers, control engineers, and application engineers are examples of these applied engineering roles commonly hired by industry.

The Department is currently considering options for renaming the Industrial Technology degree. As the old terminology is phased out, it would only be prudent to do so. The question remains, however, will we become an early adopter or will we choose to wait and see? With eight different technical options to our baccalaureate industry degree, it will no doubt be a challenge to identify a new contemporary degree name that helps all of our future grads seek an even larger pool of employment opportunities as well as help us with new recruitment of prospective students. If you would like to send me your feedback, please drop me an email at [John.Wright@Millersville.edu](mailto:John.Wright@Millersville.edu).

# Osburn Family Makes Historical Contribution to Industry & Technology

by: Dr. Mark R. Snyder

During the Summer of 2008, the Department of Industry and Technology received a contact from William Osburn, grandson of Burl Osburn, namesake of the building in which the department is housed. The Osburn family, still in possession of the estate owned by Burl Osburn just south of Willow Street, PA, was preparing to sell the property and wanted to know if the department would be interested in receiving Osburn's old printing press as a donation.

Dr. Mark Snyder, a faculty member in Graphic Communication, corresponded with William (living in Florida) and his brother Don Osburn (living in Nova Scotia). Don arranged to meet with Snyder in September to show him the press and help him load it onto a trailer. Snyder and Dr. Tom Bell went to the old Osburn homestead on a rainy Saturday morning, September 29, 2008. When they arrived, they were astounded at what they found.



Dr. Burl N. Osburn



Dr. Osburn's printing press, before it was moved, still set up in the Osburn home in Southern Lancaster County.

The home that Burl Osburn owned while he was a faculty member and Department Chair at Millersville University was quite historic. It was built prior to the American Revolution and was a parcel from the defunct Martic Forge complex. Inside the home was a small (No.2) Washington Hand Press that was still set-up just as it was when used by Burl Osburn at the time he lived in the home. Original documents accompanying the press show that Osburn purchased it used from the Pickering Press, in Philadelphia, on October 18, 1949. The press was originally sold by R. Hoe & Co. in 1905.

Don then showed Snyder and Bell another Hoe & Co. press located in the garage. This Washington Hand Press was apparently purchased by Don's father, Burl Neil Osburn, from the Cecil (MD) Whig newspaper (which is still in circulation since 1841). Burl Neil Osburn taught Industrial Education in Delaware for many years and also lived in the Lancaster home for a period. This press, according to experts was probably built prior to the Civil War. Arrangements were made for this press to be moved a few days later.

On the following Wednesday, Snyder was joined by department lab technicians Jim Deisley and Bill Horst to return to the Osburn homestead where they were greeted by both Don and William Osburn. The second press was already disassembled but considerably larger so the extra help was much appreciated.

Both presses are currently on display in Osburn Hall. The smaller press that belonged to Burl Osburn is in Room 307, a classroom used predominately by the Graphic Communication classes. The larger, more decorative, press has been restored and is on display in the Atrium on the main floor. Thanks are also due to Ray Nichols and Jill Cypher of Lead Graffiti in Newark, Delaware for their assistance with reassembling the old beauty. You can see our press featured in a Feb. 11, 2009 blog entry at their website <http://blog.leadgraffiti.com/>.

The Osburn's are planning a final family reunion in the area on April 18 and will visit Osburn Hall to see the presses on display. We look forward to hosting them and giving them a tour of the building that bears their name.

## Rememberance...

Dr. Haig M. Vahradian, assistant professor in the department of industry and technology died on December 26, 2008. Vahradian was a tenured faculty member with the department for the past seven years, with primary teaching responsibilities in the materials sciences, metals manufacturing, automated manufacturing and the machine tool technology curriculum.

This issue of The Department of Industry & Technology newsletter has been specially produced for distribution at the ITEA confence in Louisville, KY. If you would like to receive the newsletter, please send an email to [bhorst@millersville.edu](mailto:bhorst@millersville.edu).



## industry & technology Coordinator Notes industry & tech-

### Technology Education

by: Dr. Len Litowitz



The Department of Industry and Technology recognizes the sixteenth anniversary of Technology Camp for Kids. Organized by Dr. Len S. Litowitz, technology education coordinator and 2008/2009 ITEA president, the technology camp program offers K-12 students summer opportunities for experiences in exciting technical areas. This year's offering include robotics, photography, Web design, small gasoline engines, computer game development and other topics.

Started in the summer of 1993 the Technology Camp for Kids program was created to allow students to learn about various technologies through hands-on learning experiences that are both educational and fun. The first topic was computer controlled LEGO product known as LEGO LOGO. Although many camps have been added over the years the LEGO camps are still among the most popular. In recent years topics such as Forensics and Computer Game Design have also become quite popular particularly with upper level students. Most camps run for half days for one week in either Osburn Hall or Caputo Hall. A daily snack is provided for the participants. Rolling registration is now open to all students ranging from grades 3 on up. Check out this year's technology camp offerings at <http://www.millersville.edu/~techcamp>.

## Millersville University

SEIZE THE OPPORTUNITY

The Department of Industry and Technology

PO Box 1002

40 East Frederick Street, Osburn Hall

Millersville, PA 17551

717/872-3316

<http://www.millersville.edu/itec>

[itec@millersville.edu](mailto:itec@millersville.edu)

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