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Vicky Hogge returns to teach course in ECET

Vicky Hogge graduated in 2005 and is completing her final six-month rotation within the ITT Space Systems Division in program management. She was certified in Value Based Six Sigma in March 2007 and is part of a proposal team for a new program. The Space Systems Division builds sophisticated geostationary and polar orbiting imaging and sounding instruments used by the National Oceanic and Atmospheric Administration (NOAA), such as the imager and sounder for the next-generation Geostationary Operational Environmental Satellite (GOES). The current GOES instruments provide weather data and imagery seen on weather reports from geostationary locations 22,300 miles above the earth.

As an outstanding graduate, Hogge was invited to teach an ECET course in microcontroller assembly language and interfacing during spring 2007. We are thrilled to add her expertise to the department.

Vicky is quite busy with sporting events with her two boys, Kenny, a freshman on the swim team at East Noble High School, and Kody, a seventh grader at Kendallville Middle School. They enjoy watching the Mastodons play basketball at the Coliseum and the Boilermakers play football at Ross-Ade Stadium. Hogge’s other interests include the Society of Women Engineers, which she currently serves as vice president of the northeast Indiana section. The section is very active with outreach programs, career development, interaction with other engineering societies, networking, conferences, and participation with IPFW’s collegiate section. She is a member of the Institute for Electrical and Electronic Engineers (IEEE) and a Junior Achievement volunteer.
Dear Friends and Colleagues,

These are exciting times at the College of Engineering, Technology, and Computer Science and the Division of Organizational Leadership and Supervision! The other 15 pages of this third issue of Techtalk give ample evidence of our activity these last six months. More importantly, they also include some pretty impressive results that affect northeast Indiana and the wider community.

One of the college-wide highlights is our third year of a colloquia series, where new faculty and those returning from sabbatical share their expertise with groups of faculty and staff inside and outside the college, students, and the local community. This provides the possibility of mutual interests being uncovered within the university as well as between industry partners and our faculty. All of you readers are more than welcome to attend these. We are just wrapping up the seven for this year but will be back with more in the fall. Take a look at www.etcs.ipfw.edu/events/colloquium.shtml.

Another college and division–wide event will have taken place by the time this arrives in your mail — our very first annual Technology Day! On Saturday, April 28, 28 student presentations will be showcased in the lobby of the ETCS building. Here are several of the teams hard at work!

At least 13 of the presentations will highlight senior design projects done with clients in the community, including Raytheon, Creative Commons, Zimmer, Attero Tech, TrustBearer Labs, Practical Robotic Innovations, DePuy, Eaton, Dana, Fort Wayne Metals, C&M Fine Pack, and Snyder Enterprise. We also will look for collaborative applied research opportunities and encourage dialog between faculty, industry, and the community. The final program is available at www.etcs.ipfw.edu/events/techday.shtml, and highlights will be shared in the fall 2007 issue.

At the department level, there are numerous significant events reported in these pages: amazing alumni (including a feature on Vicky Hogge, shown on the cover), multiple student projects (often involving industry partners), a whole host of student organizations and their activities, new faculty and a visiting scholar from Korea, new approved and proposed programs (civil engineering, Master of Science in Engineering and Mechatronics), a sabbatical report from New Zealand, national and international presentations in Washington, D.C., and Malaysia, local involvement with many constituents including Habitat for Humanity, the Northeast Indiana Green Build Coalition, National Science Foundation grants funded, a wide variety of outreach programs involving thousands of students in K–12, and incredible lifelong learning opportunities from the Division of Continuing Studies.

If you missed our previous two issues of Techtalk, you can find them at www.etcs.ipfw.edu/events/newsletter.shtml.
ETCS Colloquium series: Fall 2006 & Spring 2007

PRESENTATIONS GIVEN TO DATE

The reduced-fill tank pressure control experiment: Zero gravity aboard the space shuttle
Jihad Albayyari
Chair, Mechanical and Industrial Engineering Technology

Abstract: Future space systems will require storage of cryogenic fluid in a low-gravity environment for extended periods of time. Heat leaks to the containment vessel lead to an increase in the temperature and pressure of the fluid. The absence of natural convection results in a non-uniform fluid temperature, which exacerbates the pressure increase. Therefore a recirculating liquid jet is necessary to mix the fluid. The major challenge facing designers is to provide sufficient velocity to obtain adequate mixing without unduly increasing the energy input to the fluid.

Although ground studies are useful, it is impossible to determine the flow patterns and properly size the mixer without conducting relatively long-duration low-gravity experiments. Therefore the Tank Pressure Control Experiment was designed. The experiment was flown aboard the space shuttle in 1997. The flight successfully predicted flow patterns, and tank pressure collapse time.

Green design and energy conservation through interior design detailing: Toward a new esthetic
Matthew Kubik
Associate Professor, Construction and Architectural Engineering Technology
Registered architect and director, M.S. technology program

Abstract: Energy prices are on an upward trend since Y2K with no end in sight. A sustainable future requires a change of our current worldview. The built environment is a major consumer of energy with great potential for conservation. Design ideas for new construction are presented that will help promote sustainability. Interior design accreditation standards have embraced concepts of sustainability as a means of designing responsibly to protect, nurture, and improve our environment. Interior designers have an expanded role to play in sustainable design by addressing means to improve energy efficiency in the current stock of buildings. Interior design solutions are suggested.

Examing the difference between conventional and green building
Regina Leffers
Associate Professor of Construction
Associate Chair, Civil and Architectural Engineering Technology
Coordinator, Construction Engineering Technology Program
Director, Center for the Built Environment

Abstract: Some of the important differences between green building and conventional building will be explained. Green/sustainable building is heading toward us with the pressure of a freight train. The pressure exists because there is no “train station” in place waiting to receive its bulk and freight — this is reflected by the conditions existing in the construction community. Construction companies remain largely unprepared to change the way in which they build. Policy changes together with scarce natural resources now occurring, not just in Fort Wayne, but also in the United States and our world, mean that we must prepare ourselves to build in this new way now. The differences between conventional and green building involve the way in which we relate to and think about the earth and its resources, the building conceptualization process that participants undergo in advance even of architectural drawings, and the method of building itself.

Provision of quality of service for multimedia transmission via rate control
Hongli Luo
Assistant Professor, Electrical and Computer Engineering Technology

Abstract: Multimedia transmission over the Internet has quality of service (QoS) requirements. Network attacks consume a considerable amount of network resources and threaten reliable transmission. A rate control algorithm for end-to-end multimedia transmission is proposed to optimally utilize network resources. An adaptive video streaming mechanism is proposed to improve the quality of delivered video streams under the constraint of bandwidth. Intrusion detection and transmission management are integrated into the design of the Internet server to provide security for transmission. Data mining–based anomaly detection is used to detect the abnormal activities. This design enhances security and guarantees resources for multimedia transmission even when there are attacks.
How to make a decision: Applications to engineering trade studies

Steve Walter
Distinguished Professor of Systems Engineering, Department of Engineering. Director, IPFW Center for Systems Engineering.

Abstract: Engineers design products and systems to meet the needs of their customers. In the development process, engineers are often confronted by multiple architectures, design approaches, test methods, and manufacturing techniques that lead to the same set of product features and functionalities. However, these alternatives may incur different development costs, schedules, and levels of risk as well as require different resource allocations. Thus, structured techniques should be employed to ensure that decisions are quantitative, based on objective information and responsive to well-defined customer preferences. These practices result in clear, documented decisions that create value for both the company and the customer.

A framework for multi-objective optimization of modular product architecture

Bimal Nepal
Assistant Professor, Mechanical and Industrial Engineering Technology.

Abstract: More than 70 percent of product costs and quality problems are directly influenced by decisions made early in the development cycle. Therefore, it is important to identify them as early and accurately as possible to avoid expensive design rework, including any potential warranty claims due to product failures in the field. Among others, the poor product architecture selection decision predominantly drives these costs and quality problems. It also influences decisions in the domains of product, process, and the supply chain. Individual product architecture characteristics such as degree of commonality, nature of interactions, and interfaces between components may constrain strategic decisions like postponement and late customization. It is argued that such types of complex situations can be simplified with the modular architecture approach. While researchers agree on advantages of product modularity, the modularization process still lacks a scientific-based approach, especially in engineering design. This research presents a framework for developing modular product architecture. It integrates “Design for X” principles and practices in modular design during concept development phase. It identifies optimal modules considering product quality, reliability, manufacturability, and modularization costs. The framework also establishes a structured process to analyze fuzzy product knowledge at an early stage of development, hence enabling design engineers to make decisions based on well-defined and measured objectives. The methodology is demonstrated through a case study on automotive climate control systems.

Assessment of Fleet Operation: Resources, Services, and Routing System

Suleiman Ashur, Ph.D., P.E.
Associate Professor of Civil Engineering, Department of Engineering.

Abstract: This study assesses fleet operation of an international academic institution with more than 350 buses and 200 vehicles that serves more than 16,000 students and employees. The fleet is mainly used for students commuting between home and colleges, and between colleges within the university campus with an operational cost of more than $6 million per year. The institution administration is considering outsourcing the services to local transport companies in an attempt to reduce cost and improve service. The objective of this study is to evaluate the current fleet operations and develop a decision-support system to evaluate current and future operations. The approach in this study was to develop a Fleet Management System to assess the current utilization of resources (i.e., Drivers and Vehicles); develop a questionnaire to evaluate the quality of fleet services by the users (i.e., students); and assess the route assignment and pick-up/drop-off operations. As a result of this study, it was found that the university resources are quite underutilized with overall good user satisfaction. Case studies are presented on how route assignments and service operations could be improved by introducing collection points or transfer facilities. Results indicated that the total operation cost could be reduced by a minimum of 20–30% while maintaining the quality of the service. Results indicated the outsourcing is far more expensive than current system. Recommendations to improve current services and reduce operation cost are then presented.

These and previous colloquia since fall 2004 may be found at www.etcs.ipfw.edu/events/colloquium.shtml.
Center for the Built Environment Collaborates for a Sustainable Residential Construction Project

Beginning in fall 2007, construction engineering technology seniors, through the Center for the Built Environment (CBE) at IPFW, will collaborate with members of the Northeast Indiana Green Build Coalition (NEIGBC) and Habitat for Humanity to design and build a sustainable residence.

We will begin by conducting a design charrette, formed of participants from all three collaborating groups. Our students and faculty members from the CBE, the family that will purchase the home through Habitat, and others from the Habitat staff and board, together with a diverse group of NEIGBC members representing all competencies of the building process, will work together to design the most sustainable residence possible. The process is intended to be educational as participants create together. We intend to have the house built and project completed by the end of spring semester 2008.

Sustainable construction is very different from conventional building because it depends on so much front-end collaborative integrated design work. The focus is first on building relationships between the people who represent the different competencies, and then to work together to achieve the design goals for energy efficiencies. We would like to educate the populace about this sustainable construction process. To that end, we will film the class with John and Pam Steinbach from JP Consultants and will collaborate with them to create a set of informative DVDs for use by Habitat for Humanity groups throughout the United States and for release to public television stations.

BCA DESIGN AND TRADE SHOW

Professor Matt Kubik presented a seminar at the Building Contractors Association (BCA) Design and Trade Show, held at the Memorial Coliseum on March 7 and 8, 2007. His seminar was part of a collaborative effort between the Center for the Built Environment, Northeast Indiana Green Build Coalition (NEIGBC), and BCA to present two days’ worth of seminars on green or sustainable construction. Kubik’s topic was “Green Interiors for Commercial and Residential Builders.” He is a board member of the United States Green Building Council, Indiana Chapter, and of the NEIGBC.

Senior construction engineering technology students presented “Green Roofs for Kettler Hall and the City-County Building” at the BCA Design and Trade Show as well. These students researched ways to make Kettler Hall, the oldest building at IPFW, more energy efficient. They aimed to cut the building’s energy use in half, and they achieved that goal! Students also researched and designed a green roof for the City-County Building in downtown Fort Wayne.

NEW FACULTY

We welcome two new professors to our department. Essam Zaneldin will join us as our new associate professor of construction engineering technology, and Reynaldo Pablo will be our new assistant professor of civil engineering technology. They will join the department in August 2007, and we are excited to welcome these two highly qualified individuals.

PROFESSOR SUINING DING & INTERIOR DESIGN PROGRAM

Professor Suining Ding, ASID, IDEC, attended the Council of Interior Design Accreditation (CIDA) Workshop at the 2007 Interior Design Educators Council (IDEC) International Conference in Austin, Texas, recently. Support was provided by the assessment grant from the Office of Academic Affairs and Department of Civil and Architectural Engineering Technology, both at IPFW.

CIDA is the organization for interior design program accreditation. The CIDA Workshop provides faculty with helpful insight and guidance. It also provided a wealth of information about the council’s accreditation process, standards, and best practices for undertaking a Council of Interior Design accreditation review.

As the Interior Design Program coordinator, Ding will work with department faculty and Industrial Advisory Committee members to develop the assessment plan in order to seek accreditation in the near future. The newly developed B.S. in interior design program at IPFW started in fall 2006. We would like to extend our warmest invitation to our alumni to come back and pursue a B.S. in interior design. For more information, please contact Professor Suining Ding at 260-481-6008 or dings@ipfw.edu.

Contact: Regina Leffers, Associate Professor and Associate Chair of CAET, 260-481-6370 leffersr@ipfw.edu
ETCS  STUDENT ORGANIZATIONS

AMATEUR RADIO CLUB
The organization promotes amateur radio activities among IPFW students, faculty, and staff. Activities include establishment of an amateur radio station for club use and preparation of members for the license exam. Members may be expelled for conduct unbecoming and violations of the student code of conduct.
Contact: Peter Goodman, 260-481-6337, goodmanp@ipfw.edu

AMERICAN SOCIETY OF CIVIL ENGINEERS (ASCE)
The organization introduces students to civil engineering through teamwork and contact with established civil engineers. Membership dues are $10 per semester. The club must consist of at least 51 percent enrolled IPFW students with a minimum of eight members. Voting members must be enrolled in at least 1 credit hour at IPFW and maintain at least a 2.00 GPA. Activities include a meeting with Kurt Heidenreich to talk about designing IPFW bridges.
Contact: Marcus Miller, 260-578-3312, millma07@ipfw.edu
Organization e-mail: asce@ipfw.edu

AMERICAN SOCIETY OF INTERIOR DESIGNERS (ASID)
The organization advances the profession of interior design. To become a member of ASID, one must fill out the membership form and pay $35 membership dues. Meetings are on the first Monday of every month.
Contact: Hannah Arthur, 260-437-9458, H-E-art@comcast.net
Organization office/phone: ET 229F, 260-481-6796
www.ASID.org

AMERICAN SOCIETY OF MECHANICAL ENGINEERS (ASME)
The organization shares knowledge of the theory and practice of mechanical engineering and promotes professional consciousness and fellowship. IPFW students pursuing a B.S. in mechanical engineering or mechanical engineering technology are eligible for student membership in the national organization. Annual dues are $20. Members must be in good standing with the university. Activities include local meetings, possible field trips, competitions, and conferences.
Contact: David Heindel, 419-953-5812, david.heindel@gmail.com
Organization e-mail: asme@ipfw.edu
www.etsc.ipfw.edu/~asme

ASSOCIATION FOR COMPUTING MACHINERY (ACM)
The organization advances the art, science, and applications of information technology. It also facilitates an open discussion of past, current, and future technologies. Membership requirements include a minimum 3.0 GPA, and the membership fee is $5. Meetings are once every month, and there are also guest lectures.
Contact: Jason Baker
Organization office/phone/e-mail: ET 118, 260-461-6803, acm@ipfw.edu
www.student.ipfw.edu/~acm

COMPUTER INFORMATION ASSOCIATION (CIA)
The organization provides an atmosphere for discussion and development of computer technology programs and personal interests/research projects, development of problem-solving skills, and increasing general knowledge of the membership. It is open to all IPFW students with a 2.5 GPA, and a limited number of non-students. Dues are decided by officers prior to the first general meeting per academic year. Members must be active by attending all meetings as detailed in the constitution. Activities include faculty speakers, fundraising pizza sales, a computer building project, CS Seminar, and helping students in computer-related classes through tutoring, discussions, etc.
Contact: Angelyn Begley, 260-485-8160, beglak01@ipfw.edu
Organization office/e-mail: WU 214K, cia@holmes.ipfw.edu
www.student.ipfw.edu/~cia

INSTITUTE OF ELECTRICAL & ELECTRONICS ENGINEERS (IEEE)
The organization ensures that the community is scientifically and educationally, directed toward the advancement of the theory and practice of electrical engineering and technology. Its goals are also professional, directed toward the advancement of standing of its members in the profession. IEEE is open to all IPFW students and may include a limited number of non-students, not to exceed one-half of the total membership. Membership and participation shall be free from discrimination and harassment per the policies of IPFW. Each member must pay annual dues to be a member of the national IEEE organization.
Contact: Art Gonzalez, 260-409-2605, gonzak01@ipfw.edu
Organization e-mail: ieee@holmes.ipfw.edu
www.etsc.ipfw.edu/~ieee

NATIONAL SOCIETY OF BLACK ENGINEERS (NSBE)
The organization gathers minority scientific and engineering students in order to help educate the younger minority population about engineering as well as to help each other succeed and excel academically. A $10 fee is required. Attendance at meetings and involvement is strongly recommended and encouraged. Activities include an auction during the Valentines Day period, tutoring math and science at high schools, and volunteering on campus.
Contact: Lydia Nzudie, 260-312-7356
lnzudie@yahoo.com
Organization e-mail: nsbe@engr.ipfw.edu
www.engr.ipfw.edu/~nsbe

SOCIETY OF AUTOMOTIVE ENGINEER (SAE)
The organization applies classroom work to real-world situations through design competitions. Members learn how to improvise, adapt, and overcome challenges and responsibilities. Membership is open to all IPFW students. Fifty-one percent of total membership must be currently enrolled in IPFW, and only those enrolled IPFW students taking at least 1 credit hour may vote, hold office, and represent the organization. Members are required to pay annual fees to the international organization.
Activities include meetings with the Fort Wayne Professional SAE, tours, Mini-Baja/formula, SAE design competitions, meetings, and fundraising.
Contact: Joseph J Thomas, 260-492-0730, jjthomas@us.ermv.mil
Organization e-mail: sae@ipfw.edu
www.etsc.ipfw.edu/~sae

SOCIETY OF ENGINEERS (SME)
The organization is an operating institution for the advancement of scientific knowledge and education in the field of manufacturing. Membership is open to all IPFW students and may include a limited number of non-students. Fifty-one percent of the total membership must be currently enrolled students at IPFW, and only those members may vote, hold office, and represent the organization/university in an official capacity. There are no dues. Activities include monthly meetings, a plant tour to Setex, Johnson Controls, General Motors, and possibly a guest speaker/fundraiser.
Contact: Michael Oh, 260-602-2116, mustang196718@gmail.com
Organization e-mail: sme@holmes.ipfw.edu
www.etsc.ipfw.edu/~sme

SOCIETY OF WOMEN ENGINEERS (SWE)
The organization establishes engineering as a highly desirable career aspiration for women. It empowers women to succeed and advance in those aspirations and be recognized for their contributions as engineers and leaders. Members may not be employed full time in a professional engineering position or a field related to engineering. They must be currently pursuing an undergraduate degree in engineering or a full-time baccalaureate degree in engineering or a field related to engineering. Activities include a picnic, annual opportunity banquet, plant tours, and “She’s the Engineer” event with the Girl Scouts.
Contact: Amanda Irish, irishah01@ipfw.edu
Organization e-mail: swe@engr.ipfw.edu
www.etsc.ipfw.edu/~swe

UPSILON PI EPSILON (UPE)
The organization promotes high scholarship in the field of computer and information science. Membership requirements include an undergraduate student GPA of at least 3.0 (60 credit hours) and a graduate student GPA of at least 3.5 (15 credit hours). The annual fee is $10 plus the international dues. Activities include a meeting and induction ceremony, fundraising, and planning events.
Contact: Angela Begley, 260-745-8208, beglak01@ipfw.edu
Organization office/e-mail: WU 214K, upe@ipfw.edu
www.students.ipfw.edu/~upe

Organization e-mail: sme@holmes.ipfw.edu
www.etsc.ipfw.edu/~sme

Organization e-mail: sme@holmes.ipfw.edu
www.etsc.ipfw.edu/~sme

Organization e-mail: sme@holmes.ipfw.edu
www.etsc.ipfw.edu/~sme
Sabbatical in New Zealand

By David Erbach

Last fall I had the pleasure of taking a sabbatical semester at the Institute of Information and Mathematical Sciences (IIMS) of Massey University in New Zealand. Massey is named after the country’s prime minister during WWI. Like Purdue, it was founded as an agricultural/technical university in a small town. But also like Purdue, it has gone on to achieve an international reputation in many areas. The Albany campus I visited is on Auckland’s North Shore, the newest and most rapidly growing part of the city.

Massey has, in IIMS, created an interesting grouping of subjects. They are linked because all work with aspects of the abstract notion of “information.” IIMS groups mathematics, computer science, and information systems, which in North America would commonly be lodged in three different colleges.

While there, I taught a course called Network and Client-Server Design. With 190 students and two dedicated teaching assistants, this was a rather different experience from typical IPFW classes. I also taught a postgraduate-level short course, called Software Quality and Reliability, to a largely international audience. The plan is to adapt the notes for an ACS master’s degree topics course at IPFW this fall.

Of course, being in a place like New Zealand, it would not have made sense to stay home all the time. During the semester, we visited much of the North Island, including what is left of Hobbiton. Between lectures and examinations, we took two weeks to visit the South Island, which seems to offer an endless collection of picture-postcard views. It’s easy to see why New Zealanders are fond of the place.

Yum’s research area is in network security. During his visit, his research will focus on the design of a secure and scalable Identity and Access Management (IAM) system. Most applications, after authenticating a user, permit all privileges to the user or handle access control within the applications. But there are increased requirements for a scalable, fine-grained access management system across multiple applications. Identity and access management has become a key security service. The Web has created many resources such as URLs, files, and scripts with privileges that need to be managed. The IAM system provides sophisticated, scalable, and manageable access control; reduces costs; and improves security.

Yum is also planning to learn about CAC/ABET accreditation from the IPFW computer science department, as the department is the first accredited computer science program in Indiana, and there are professors in the department who are experts on this issue. His department in Korea is interested in obtaining this accreditation.

ALUMNI NEWS

Atanas Vanchev, our stellar B.S. computer science graduate featured in the fall 2006 issue of Techtalk, has decided to accept the offer from the University of California–Berkeley. He will be on a scholarship as he pursues an M.S. in financial engineering. He had also been accepted at many other schools, including Carnegie-Mellon University.

STUDENT NEWS

• Josh Elwood presented his research project “A Multi-user Virtual Campus Social Space” at the 19th Annual Undergraduate Research Conference at Butler University on April 13, 2007.

• Keith Bock, Michael Burton, Rod Strong (graduate students) and Professor Beomjin Kim had the following paper accepted: “A Multi-user Decision Support System Conducted within a Dynamic Virtual Environment.” This was given at the 18th Midwest Artificial Intelligence and Cognitive Science Conference at DePaul University on April 21–22, 2007.

• John Bryan, graduating M.S. student, and our very first one pursuing a thesis option, has had a paper accepted for presentation at the Midwest Artificial Intelligence and Cognitive Science conference in Chicago.

• Another paper, “Geometric Thumbnails for Web Searching,” with Chris Dunn, a graduating M.S. student has been accepted for The Nineteenth International Conference on Software Engineering and Knowledge Engineering on July 9–11, 2007, in Boston.

• Taylor Venable and Mike Mattax competed in the system-wide student research competition at Purdue Calumet, winning second place and a $300 cash award.
Our “real projects for real client” courses continue to draw favorable comments from our clients, including Raytheon, TrustBearer Labs (formerly Identity Alliance), and Creative Commons. The CS 360 Software Engineering and CS 460 Capstone Design courses welcome other potential clients who want to have our student teams work to develop real software applications for them.

The use of student teams continues to pervade many courses in the department. In addition to the teams above, students in other courses also learn to utilize professional teamwork skills and written, oral, and presentation skills in CS 366 (Structured Analysis Techniques), CS 367 (Structured Design Techniques), CS 466 (Strategic Issues for Information Systems), and CS 467 (Project Management).

Gyorgy Petruska will take a sabbatical in fall 2007, working with Seagate Research in Pittsburgh on “Pseudorandom Generators and Recursions in Cryptography.”

Mark Temte has decided to participate in the Voluntary Early Partial Retirement (VEPR) Program. He will teach in the spring terms and be off in the fall terms.

Robert Sanders has likewise decided to participate in VEPR, teaching a half-time load in both fall and spring terms.

Finally, Ken Modesitt will take advantage of the VEPR program, working at a 20 percent load as associate dean for external partnerships and research, beginning on July 1, 2007.

Judy Rhoades, our departmental secretary and a full-time student in music education, gave her senior recital on March 16, with songs from Mozart, Strauss, Debussy, and Purcell. Nearly every member of the department was in attendance to hear these beautiful soprano selections.

The department received notice that our B.S. program in computer science, the first program in Indiana accredited by the Computing Accreditation Commission of ABET, now has company! Our sister institutions at Notre Dame and Evansville joined the list of accredited CS programs in 2006. Our next visit by a team from CAC/ABET is scheduled for fall 2009.

The Informatics Program is expected to “go live” in spring 2008, subject to final approval by the administration.

A new course on security will be offered this summer by David Liu.

A proposal has been sent to the Graduate School at Purdue West Lafayette to add a thesis option to our M.S. degree in applied computer science. Six letters of support from members of the Departmental Professional Advisory Board accompanied this proposal.

Bob Sedlmeyer received a grant from Raytheon for C3I Knowledge Capture and Representation. He has also been active in promoting an innovative and interdisciplinary effort for the RoboCup competition.

Ken Modesitt was part of a five-university team that submitted an NSF CCLI grant in January related to “Collaborative Research: Real Projects for Real Client Courses” in the amount of $1.3 million.

David Corcoran of TrustBearer Labs hosted the 15th meeting of the Professional Advisory Board on April 26, 2007. Please see complete information at www.cs.ipfw.edu/pab/pab.php.

As always, we extend an invitation to alumni and friends to stop by, bring us up to date on your professional lives, and find out first-hand about our exciting people and activities.

Contact: Ken Modesitt, Professor and Interim Chair of CS 260-481-6237 modesitk@ipfw.edu
ETCS K–12 Outreach: Fun and Informative

The ETCS Outreach office, supported through a grant from Franklin Electric, has been busy coordinating hands-on programs to Indiana students. A review of the largest programs/events demonstrates that K–12 students have the opportunity to learn, practice skills, and gain valuable career information while engaging in exciting events.

In December, the FIRST LEGO® League Indiana Championship Tournament, sponsored by ITT, brought the top 48 Indiana teams to IPFW to vie for a spot at the World Festival in April. Teams with students ages 9–14 engaged in scientific research and hands-on robotics design. IPFW collaborated with five other universities across the state that hosted qualifying tournaments for 140 state teams. More than 500 fans jammed Gates Sports Center to see the event. Volunteers made it happen! The top winning team, Access 9, was from South Bend.

January brought the Indiana Regional Future City Competition where seventh and eighth graders, working under the guidance of a teacher and engineer mentor, created cities of tomorrow using SimCity 3000™ software and built a large tabletop model using recycled materials. Twenty-six Indiana schools registered and 27 teams presented their models and defended their designs before a panel of judges with the theme “fuel cells.” Indiana Michigan Power sponsored the finals awards. In addition, 18 local sponsors provided financial support or special awards. The winning team, Riverview Middle School from Huntington, represented Indiana at the national event in Washington, D.C., in February.

February brought the Bridge Building Competition, held in accordance with National Engineers Week. This high school bridge contest was highlighted with many participants from Lumina, a youth organization from the Educational Opportunity Center.

March is the traditional month for the Northeast Indiana Regional Science and Engineering Fair. Nearly 300 students in grades K–12 representing 58 area public, parochial, and home schools filled Gates Sports Center. Three Junior Division winners (grades 6–8) and four Senior Division (grades 9–12) winners advanced to the Hoosier State Fair. Two Senior Division students advanced to the Intel International Science and Engineering Fair in Albuquerque, N.M. The fair was sponsored by Raytheon and International Truck and Engine Corp. Nineteen local sponsors provided cash awards and prizes to 67 students.

March and April also included Middle School Career Days hosted by ETCS and the Department of Engineering. This event is structured to provide exposure to a wide variety of engineering and technology disciplines. Presentations included guest representatives from International Truck and Engine Corp. and the Fort Wayne Fire Department, along with IPFW faculty and student assistants. A total of 419 students and 48 adults participated.

For information about participating as an event volunteer, presenter, or mentor for any of the above events, please contact Carol Dostal, 260-481-6905, dostalc@ipfw.edu.
Civil engineering degree program off to a great start

The new Bachelor of Science in Civil Engineering degree program had an auspicious start in fall 2006. More than 15 students were interested and advised under the new degree plan. Program curriculum was developed under the direction of Suleiman Ashur, associate professor of civil engineering, and meets local, regional, and national needs as well as all accreditation requirements. The curriculum offers courses in structural analysis and design, materials, geotechnical, transportation, environmental, and water resources. To meet ABET accreditation requirements, students must also take one elective from an additional science area such as geology and biology. The curriculum, bingo sheet, and technical electives are posted at www.engr.ipfw.edu/civil.

DEPARTMENT NEWS

The department has secured space on campus to develop and offer environmental and materials laboratories. In fall 2007, the department will offer two civil engineering courses: CE 210 Introduction to Geomatics and CE 345 Transportation Engineering.

The Department of Engineering and the Civil Engineering Technology Program worked together to support the American Society of Civil Engineering (ASCE) Club at IPFW. The club now has a constitution and elected officers. Recently the club invited Kurt Heidenreich, president of Engineering Resources, to give a seminar on “IPFW Bridge Stayed Pedestrian Bridges.” This event was very successful with more than 30 students, faculty, and visitors in attendance. Club members plan to attend the 2007 ASCE Great Lakes Conference in West Lafayette and observe the concrete canoe and steel bridge competitions there.

GRADUATE PROGRAM TO LAUNCH THIS FALL

IPFW is well on the way to establishing an engineering graduate program at the Fort Wayne campus. In February, the Purdue Board of Trustees unanimously voted to endorse the IPFW Master of Science in Engineering (M.S.E.) proposal. Approval by the Indiana Commission of Higher Education (ICHE) is the next and last step required to obtain formal authorization for the M.S.E. program. The date for the ICHE vote has not yet been set, but we expect approval in time for the fall 2007 semester.

The proposed M.S.E. degree program is designed to develop a deep understanding of engineering principles through the core engineering course work. These engineering courses will be augmented by electives in computer science, mathematics, physical sciences, and management tailored to an individual student’s interests and career path. The M.S.E. degree program will offer four technical tracks:

• systems engineering, training students how to design, build, test, and manage complex and multidisciplinary system development projects,

• computer engineering, deepening students’ knowledge of computer networks and architecture, wireless communications, and software engineering,

• electrical engineering, emphasizing signal and image processing, control theory, and wireless communications, and

• mechanical engineering, expanding on a student’s understanding of fluid mechanics, solid mechanics, mechanical dynamics, and heat transfer.

There will also be a thesis option, giving students the opportunity to conduct cutting-edge research under faculty supervision.

The M.S.E degree program is designed to meet the needs of both full-time students and practicing engineers. A copy of the proposal and more information can be found at the Department of Engineering Web site, www.engr.ipfw.edu/graduate/default.shtml.

WANG RECEIVES NATIONAL SCIENCE FOUNDATION GRANT

The proposal “Preview, Exercise, Teaching, and Learning in Digital Electronics Education” has recently been funded ($81,220) by the National Science Foundation (NSF). Guoping Wang, assistant professor of computer engineering, is the principal investigator of this project.

This project aims to develop a digital electronics course that relies on students’ active participation at each stage of the learning process. It involves Web-based preview material and warm-up assignments followed by interactive classroom teaching and learning. This instructional approach, referred to as Preview, Exercise, Teaching, and Learning, is a variation of the just-in-time-teaching (JITT) methodology, and it enhances students’ learning because they take an active part in the learning process.

Before a topic is presented in class, students briefly preview the new materials delivered through Web-based multimedia, and then respond electronically to carefully constructed warm-up exercises, which are due before class. The interactive classroom session, built around students’ responses to warm-up exercises, replaces the traditional lecture format. Project materials and results will be posted on the course Web site, presented at engineering education conferences and published in academic journals. The evaluation process will be guided by experts from the IPFW Center for the Enhancement of Learning and Teaching (CELT). Surveys, special tests, interviews, and focus groups will be used to monitor the project’s progress. Broader impacts include dissemination of instructional material, building connections among faculty members who teach digital electronics, and improving the retention of students who find the traditional lecture format ineffective.

WEB SITE FEATURES NEW LOOK

The Department of Engineering has given its Web site (www.engr.ipfw.edu) a facelift. The site is now compatible with the new university guidelines. Students and members of the community will find the new site to be user-friendly and easier to navigate. Along the way, information was added and existing content was revised and updated. For example, the site provides information on our new civil engineering program and new graduate program.

Contact: Carlos Pomalaza-Raez, Professor and Chair of Engineering 260-481-6353 raez@ipfw.edu
**Paul Lin Visits Mingshin University**

Paul Lin made an invited presentation at Mingshin University of Science & Technology, Taiwan (www.must.edu.tw/index_en.aspx), on March 7, 2007. His topic was “Distributed Control and Sensing of Networked Devices and Systems,” and the presentation was for faculty and students of the Electrical Engineering and Electronics Engineering departments of the university. This presentation was arranged by Wen-Lu Weng, dean, College of Engineering, Tin-Chung Lee, chair, Department of Electrical Engineering, and Nien Chen, chair, Department of Senior Citizen Service Management. Lin also discussed the possibility of international student and faculty collaboration and exchange during this visit.

On March 8, Lin made an invited presentation on U.S. Engineering Technology Program Assessment and Accreditation at Minchi University of Technology, Taipei (http://english.mit.edu.tw/). This presentation was for Thu-Hua Liu, president; Hui-Ping Feng, dean, College of Engineering; S. C. Chang, chair, Department of Vehicle Engineering; We-Wen Hung, chair, Department of Electronic Engineering; and five other faculty members. This presentation will help the university prepare its programs for accreditation by its accreditation body — Institute of Engineering Education Taiwan — similar to ABET, which accredits programs in the United States.

**NEW IPFW AMATEUR RADIO CLUB**

A new IPFW Amateur Radio Club was formed and granted an FCC Club Station License for KM9DON. Pete Goodmann led the way on the club and arranged for donations and assistance from the Fort Wayne Radio Club (FWRC) to install the roof antenna on the ETCS building. With the new antenna, KM9DON is capable of communicating with other amateur radio stations anywhere in the world.

The new club has 24 members, including 20 students and 4 faculty/staff. Amateur radio operators must be licensed by the FCC, so the new club’s top priority is helping students (and others) prepare for the license examination. Joseph Lawrence (K9RFZ), a limited term lecturer in physics, will teach a license preparation class on Sunday evenings in April. Radio amateurs are no longer required to learn Morse code, but still need to demonstrate knowledge of electronics, radio theory, U.S. and international regulations, and operating practices.

While amateur radio is commonly thought to be a way to “chat” with other “hams” around the world, it’s really much more. Radio amateurs have been involved in technology development and education for nearly a century, and amateur radio offers students many opportunities to explore such aspects of electronic technology as digital modulation, satellite communications, software-defined radios, embedded software development, and microwave systems. More importantly it offers faculty a way to make technology fun and engaging for the “Ipod generation.”

**CIRCUIT BOARD FABRICATION**

The sophomore project course involves circuit design and fabrication of a double-sided circuit board using a milling machine. A microscope is necessary because small outline devices are used, much like in industry. The first project in the course gives students a quick and practical introduction to schematic capture, simulation, and PCB layout tools. They go on to use these in an advanced project — a simple but sophisticated shortwave receiver — which gives the students practical experience with several important technologies including software-defined radios, digital signal processing, and surface-mount technology.

**GARY STEFFEN’S LEADERSHIP**

Gary Steffen was elected to the National Board of Directors of Tau Alpha Pi, the engineering technology student honor society, and represents IPFW on the national Engineering Technology Council and the Engineering Technology Division of the American
Steffen has received both the ETCS Excellence in Teaching and Excellence in Service awards. His expertise is in network security, and he is a leader in the IEEE and the Tau Alpha Pi student chapters at IPFW. His article “Information Systems Security in a Computer Engineering Technology Program” is being published in the spring 2007 edition of The Technology Interface, an electronic journal.

The time Steffen has away from IPFW is frequently spent following his three very active children in soccer, choir, and band. Tre, age 13, Erika, age 11, and Dharma, age 8, all attend Steffen’s alma mater, Adams Central in Monroe, Ind. Together they enjoy activities such as playing golf, swimming, kicking around the soccer ball, and cheering on the Colts, Mastodons, and Boilermakers. He also spends time in his consulting company designing training plans and maintaining computer systems and servers.

Iskandar Hack will be the keynote speaker during the plenary session of the First International Conference on Engineering Technology (ICET2007) which will take place Dec. 11–13, 2007, at the University of Kuala Lumpur (UniKL), Malaysia. He was in Malaysia during March 2007 coordinating the conference and will determine the electronic and electrical. The purpose of ICET2007 is to bring together engineering technology professionals from industry, academia, and governments to discuss relevant research and development, professional practice, and business and management areas.

Hack also traveled to Malaysia with four students during July 2006 to study Advanced Microprocessors at UniKL for three weeks. The program was well received, and students were invited to study at UniKL during summer 2007. IPFW students also shared an apartment with their Malaysian counterpart, which provided an opportunity for ECET students to experience the culture of the country. Students had the opportunity to see the Petronas Twin Towers, the historical city of Malacca, and a traditional Malay wedding. UniKL is planning on sending four faculty members to Fort Wayne this summer for three weeks to identify common research areas and work with faculty from IPFW on joint research projects.

Iskandar seems to spend half his life on airplanes. In the last year he’s traveled twice to Malaysia to work on various projects, attended his sons’ weddings or visited his wife in the Los Angeles area several times. Also, in the last year he became a grandfather for the first time. When he is not traveling, he likes to experiment with computer software and operating systems. During football session he always makes time to watch his Minnesota Vikings play, although in the past few years he seems to miss more games. But he always finds time to watch 24, to which he may be addicted.

Contact: Hal Broberg, Associate Dean and Chair of ECET
260-481-6341 broberg@ipfw.edu

Advanced Business Technology Solutions Program
Participants should have a strong working knowledge of algebra and basic computer skills.

This course will provide current and future knowledge managers effective technology tools and skills to identify and analyze business problems, create and test solutions, and devise a plan to manage the project completion. Participants will work in teams on NE Indiana company projects through the study and implementation of tools and strategies from Six Sigma, Mini-Tab, Microsoft® Project Management 2003, Extend Simulation, and RFID.

The course also will provide certificates in the following areas:
• Lean and Greenbelt Six-Sigma
• Microsoft® Project 2003 Test Prep
• RFID

Participants will
• Perform Six-Sigma analyses for three different companies
• Analyze projects using Microsoft® Project 2003

• Utilize RFID in a state-of-the-art lab to observe the integration of the Supply Chain and Asset Movements

Sponsored by The BEST Institute, IPFW Richard T. Doermer School of Business Management Sciences and the Division of Continuing Studies.

07UBUS490
Aug. 20–Dec. 3 (15 meetings) (No class on Oct. 8)
Mondays, 6–8:45 p.m.
Rob Palevich, instructor
4.4 CEUs
$425

To register, call 260-481-6619.
IPFW students (credit) can register for BUS K490 or BUFW M575.
This program can be customized for on-site training.
Faculty News


Jihad Albayyari (MIET chair and CAET interim chair) is IPFW affiliate director of the Indiana Space Grant Consortium (ISGC). He will work with IPFW faculty to seek research funds through the ISGC, and he will assist IPFW students in applying for ISGC scholarships and becoming summer interns with NASA Centers. Sarah Merchant is assisting Albayyari with the program. For information, visit www.isgc.org.

Barry Dupen is working with mechanical engineering technology seniors. They will present their Senior Design projects on April 27, 2007, to various industries. Ten projects will be presented:

- **MET** Heavy Duty Clutch Preset Fixture (for Eaton)
- **MET** Round Hay Bale Mover
- **IET** PVC Compounders Mixing Process Improvement
- **MET** Tube Puller for Dana Axle Housing (for Dana)
- **MET** DePuy Poly Dryer (for DePuy)
- **IET** DePuy Poly Dryer (for DePuy)
- MET Surface Oxide Measurement on Nitinol and Titanium Wire (for Fort Wayne Metals)
- MET Thermoformed Container Integrity Tester (for C&M Finepac)
- IET TBD
- MET Vehicle Speed Controlling Fluid Coverage System (for Snyder Enterprise)

**PROPOSED MECHATRONICS ENGINEERING TECHNOLOGY PROGRAM**

The mechanical engineering technology and the electrical engineering technology faculty, led by Professors Hack, Lin, and Liang, are developing a Mechatronics Engineering Technology Program. Mechatronics is the synergistic combination of mechanical engineering (“mecha” for mechanisms, i.e., machines that “move”), electronic engineering (“tronics” for electronics), and software engineering. The purpose of this interdisciplinary engineering field is the study of automata from an engineering perspective to control advanced hybrid systems.

Contact: Jihad Albayyari, Professor and Chair of MIET, 260-481-6391 albayyaj@ipfw.edu

**Crossroads and Innovation**

IPFW is partnering with the Greater Fort Wayne Chamber of Commerce to offer continuing education credits to those who attend the Expo.

**Bigger and better than ever!**

- 6,000 attendees, 300 exhibitors, 25 educational seminars
- Educational seminars focused on operations, human resources, finance, technology, strategic planning, sales and marketing, and personal growth
- Continuing education instruction certificates

The IPFW Division of Continuing Studies will e-mail certificates for one hour of continuing education instruction to registered attendees. If an e-mail address is not provided, certificates will be mailed to the address provided on the registration form. Register online at [www.businessexpo.org](http://www.businessexpo.org).
As president of the Hispanic Leadership Coalition of Northeast Indiana Inc., Professor Max U. Montesino attended two important summits organized by members of the U.S. Senate in Washington, D.C., discussing the issue of comprehensive immigration reform. Invited by the offices of Senators Hillary Clinton (New York) and Evan Bayh (Indiana), Montesino attended the 7th Annual Democratic Hispanic Leadership Summit “Compromiso Democratic con el Pueblo Latino: A New Direction for Latino Families,” Sept. 21, 2006, at the Senate Dirksen Building. Invited by the offices of Senators Kay Bailey Hutchison (Texas) and Richard Lugar (Indiana), Montesino attended the National Hispanic Leadership Summit, March 20–21, 2007, at the Hyatt Regency on Capitol Hill.

At both events, Montesino talked to senators and representatives about the need for comprehensive immigration reform in the United States. Besides the senators who invited him to come to the Capitol, Montesino talked to Senators Richard Durbin (Illinois), Harry Reid (Nevada), Mel Martinez (Florida), and Christopher Dodd (Connecticut). Montesino also talked to Representative Luis Gutierrez (Illinois) and the Speaker of the House Nancy Pelosi (California). He networked extensively with organizations and think-tanks that (like him, on a bipartisan basis) advocate for comprehensive immigration reform in the country.

Montesino has been actively involved in the fight for immigration reform locally. He was the keynote speaker at a massive rally organized by the Hispanic community of Allen County on April 2, 2006, that brought around 6,000 people to the streets of Fort Wayne to put the issue of immigration reform at the forefront in the local context. Currently, he is heavily involved in a campaign to convince legislators (Republicans and Democrats) to pass an immigration bill before the August 2007 recess. Montesino said that it is at the level of Congress where the real battle for a more humane system of immigration is being fought. “We have to call our legislators, write them letters, visit their offices, and let them know by any means that we need legislation that solves the immigration crisis in this country, not just partial and impractical measures for political expedience,” Montesino said.

According to Montesino, the legislation should a) protect the nation’s border and national security, b) keep the immigrant family united, c) protect fundamental civil and human rights and reject proposals that criminalize immigrants and their families, d) provide a practical and legal avenue to earn permanent residence and citizenship for those already within the United States, and e) create a workable and realistic pathway for future immigrants to obtain residence while guaranteeing strong and enforceable labor protections for those who participate in the program. Montesino delivered this message to the legislators as he visited Congress.

FACULTY NEWS

• Professor Dina Mansour-Cole was awarded the Thanks Badge — the Girls Scouts of the United States of America’s highest honor for outstanding service advancing the mission and activities of Girl Scouting at the regional and national level.


• Visiting Instructor Faith Ngunjiri received the 2007 Outstanding Dissertation Award from the Administration, Organization, and Leadership Division of the American Educational Research Association. Her dissertation is titled “Tempered radicals and servant leaders: Portraits of spirited leadership amongst African women leaders.”

• Professors Linda Hite and Kim McDonald served on the site committee for the 2007 Academy of Human Resource Development International Research Conference held in Indianapolis in March.

GIRLS LEADING OTHERS

UPCOMING EVENT

The annual Girls Leading Others camp will be held June 18–22 at IPFW. Please contact 481-6420 for additional information.

Contact: Kim McDonald, Associate Professor and Chair of OLS 260-481-6418 mcdonaldk@ipfw.edu
Lean Manufacturing Series

IPFW leverages the resources of Purdue University by teaming with their TAP/MEP to offer the Lean Manufacturing Series. The National Institute of Standards and Technology Manufacturing Extension Partnership (NIST MEP) provides funding and support for a manufacturing-focused not-for-profit service provider in each state. The MEP Center for Indiana is the Purdue University Technical Assistance Program (TAP), a part of a national network of manufacturing experts ready to help regional businesses succeed in a big way! TAP is linked to all the MEP Centers in other states — giving each the awesome power of the whole system!

Required Courses
The series includes the following eight courses offered across the fall and spring semesters:

- Principles of Lean Office with Live Simulation
- The 5S System — The Visual Workplace
- Value Stream Mapping
- Principles of Lean Manufacturing
- Cellular/Flow Manufacturing
- Total Productive Maintenance
- Pull Systems/Kanban
- Quick Change — Setup Reduction

Benefits
Participants receive a Purdue NIST/MEP certificate of completion.

Registration
Each course is just $295 and is offered from 8 a.m.–5 p.m. Fee includes materials and boxed lunch.

Group discounts are available when two or more from the same organization register. Call 260-481-6619 for details.

These courses can be delivered on-site and combined with IPFW courses to build your curriculum. To bring this series to your organization, contact Gary Schott at 260-399-1675; schottg@ipfw.edu.