

Engineering News

SPRING 2012

Greetings from Dr. Nemes

I'm pleased to report some exciting changes to take place at Penn State Great Valley in the coming years. A new multidisciplinary engineering design option in the bachelor of science in general engineering program has been approved and will be offered through a consortium comprised of Penn State Great Valley, Penn State Abington, and Penn State Brandywine. As currently envisioned, students will complete their first two years at Abington or Brandywine and their last two years at Great Valley. This is a great boost for Penn State engineering: It will allow students in the Philadelphia region to obtain a Penn State degree without having to leave the area. In addition, having undergraduates here during the daytime provides for more efficient use of our facilities. The choice of multidisciplinary design as a degree option comes from a recognition that today's challenging design problems rarely encompass a single discipline. What's needed to tackle these problems is a mix of skills of the traditional disciplines with a goal of designing superior products. Design teams need not only solid engineering knowledge but also the ability to work with others both inside and outside of the engineering industry. Multidisciplinary design is especially important to engineering students because it really is a reflection of what most students will experience in a future work environment. While we're still a few years away from having undergraduates on our campus, this program is a true recognition of the strength of the engineering division here at Great Valley.

Jim Nemes, D.Sc.
Interim Director of
Academic Affairs

Regional Consortium Approved

Penn State's traditional model for earning a baccalaureate engineering degree at a Commonwealth campus usually means that students will take two years at their Commonwealth campus, then relocate to another campus, most often University Park, to finish their remaining two years. For many engineering undergraduates in the Commonwealth system the opportunity or means to move to University Park is not always feasible. Now students have another option.

In March 2011, a University curricular committee approved the formation of the Penn State Abington, Penn State Brandywine, and Penn State Great Valley consortium, which will offer students a new engineering degree option: Spend all four years in the Penn State Commonwealth system within the Philadelphia region with faculty from Abington and Brandywine providing the course delivery.

Effective spring 2012, the engineering degree option will be offered as a multidisciplinary track in engineering at the Abington and Brandywine campuses. Students can begin this program at either campus for their freshman and sophomore years then finish their junior and senior years by completing the remaining upper division courses at the Great Valley campus instead of transferring to University Park. It is anticipated that some students will choose to spend the additional time to earn a master's degree at the Great Valley campus.

Bringing the program to the Philadelphia area supports a University strategy to create innovative academic programs and possibilities for students while fulfilling local industry demands and providing students with opportunities to network and build relationships through internships with area businesses.

Working together as a consortium, these entities consolidate the power of the Penn State brand in a major metropolitan area.



Penn State Abington



Penn State Brandywine



Penn State Great Valley

Bringing together the strength of the three campuses —Abington, Brandywine and Great Valley—to offer a Penn State engineering degree in the Philadelphia region.

FACULTY PROFILE

Shamsnaz S. Virani, Ph.D.
Assistant Professor, Systems Engineering

NOT IN HER BLOOD

An aptitude for math and being squeamish toward blood was how Shamsnaz S. Virani, Ph.D., assistant professor, systems engineering, choose a career in engineering. A native of India, her culture has two well-respected career choices for those who excel in science or math: medicine or engineering. Needless to say, Virani's choice was easy.

IT TAKES A VILLAGE

The oldest of four daughters, Virani was born in a small village near Nagpur, India. The mantra, "It takes a village to raise a child," couldn't be more appropriate for her upbringing. "My mom would bathe me, feed me, and dress me, then I was gone. My father's seven sisters, our extended family, and the villagers would take over entertaining me, playing with me, and caring for me." She laughs about her childhood "celebrity" status. "I appeared in every picture with most of my family members and villagers. Must be where I got my social attitude."

Education was important in Virani's house. "Independence and education were top priorities in my family but required sacrifices. Since our village did not have English-speaking schools, my sisters, mom and I would live miles away, while dad stayed home attending to business." Virani notes this is the reality for many Indians due to the locations of business and good schools.

AN INSPIRATION

From an early age Virani learned from her father the value

of education along with the importance of giving back to the community. The lack of schools in her village led her father to establish the first English-speaking elementary school. Yet, it was not easy: He spent years lobbying to get federal support and obtain property to build a school structure. Using his retirement funds, he eventually donated the land. He then built the first science high school in the village (junior college in India). He is proud of the impact this school has had on the students.

LAND OF OPPORTUNITY

Upon completion of her bachelor's in electrical engineering from the University of Pune, India, in 2000, Virani left her homeland to obtain a master's degree in the United States. The transfer process was complicated but proved instrumental when she applied for her first job in the United States. Receiving her master's degree from Wright State University in Dayton, Ohio, Virani secured a job in the school's admissions office where she processed international student applications. Soon after, Virani received her doctorate in systems engineering from the University of Alabama at Huntsville. It was at this point that she realized her career path as an instructor in an adult-learning environment.

CHIP OFF THE OLD BLOCK

While working in El Paso, Texas, Virani began volunteering at an area high school. The superintendent asked her to look at how engineering could be incorporated into high school curriculum. Working with teachers and administrators, she developed

"A Framework for Innovative Curriculum in Engineering in High School (ICE-HS)." Today, the process is in the finishing phase and includes a program with NASA.

CLOSE KNIT

Virani admits she misses home, yet stays connected as an active lecturer and member of her father's school administration. In her down time, she enjoys hiking, reading, and knitting done with a mathematical twist. "Knitting requires lots of math skills," points out Virani. "It adds a whole new level to the craft."

Virani is pictured middle front row.



FACULTY ACCOMPLISHMENTS

Kathryn Jablokow, Ph.D., associate professor, mechanical engineering, was granted a courtesy joint appointment in the Penn State School of Engineering Design at University Park in recognition for her recent contributions.

Phillip A. Laplante, Ph.D., professor, software engineering, was named IEEE Reliability Society's Engineer of the Year for his achievements in mission-critical, software systems research, education, and professional practice and elected to a three-year term on the IEEE Reliability Society Board of Directors (Administrative Committee).

Colin J. Neill, Ph.D., associate professor, software and system engineering, **Phillip A. Laplante**, Ph.D., professor, software engineering, and **Joanna DeFranco**, Ph.D., assistant professor, software engineering, and had their book, *Antipatterns: Managing Software Organizations and People* (2nd edition), released in Dec. 2011.

Michael J. Piovoso, Ph.D., professor, electrical engineering, had "Optimal Antiviral Switching to Minimize Resistance Risk in HIV Therapy" accepted for publication in the *Public Library of Science ONE*.

Robin G. Qiu, Ph.D., associate professor, information science, was awarded a research grant from IBM to investigate electric vehicle users' behavior.

Raghvinder Sangwan, Ph.D., associate professor, software engineering, coauthored and presented "Modeling Architectural Dependencies to Support Software Release Planning," in the Proceedings of the 13th International DSM Conference, in September, at MIT, Cambridge, Massachusetts.

STUDENT PROFILE **Christopher Artz** Information Science



PENN STATE TRIFECTA

"Once a lion always a lion," says Christopher Artz, a student in the master of science in information science (MSIS) program. He should know: Artz is obtaining his third degree from Penn State. Having received an undergraduate degree in finance from the Smeal College of Business at University Park then an MBA from Great Valley, Artz confesses he bleeds blue and white. "I loved my experience as an undergrad at University Park and was very happy with the quality of the classes. Coupling the MSIS with the MBA and BS in finance gives me the Penn State trifecta of cutting-edge success."

HYBRID PATH

While finance and business degrees seem a far cry from his current program, Artz saw it as a natural progression for his interests. "My fascination with software development and information science has led me to a unique hybrid path of melding the two concentrations," says Artz. A senior financial analyst for strategic accounts at Airgas, Artz has evolved the role into a hybrid function effectively combining finance with instructional systems. In this capacity he has developed software, database solutions, and process enhancements to maximize efficiency and productivity throughout the company along with his responsibilities of handling sales support, pricing, profitability modeling/analysis, and numerous other financial functions for multimillion dollar accounts. Today, Airgas runs eight applications that he has written, which have helped streamline corporate operations.

OUTSIDE THE OFFICE

With work and school it seems like there would be little time for outside activities. Yet Artz has established two side businesses: an eBay store that specializes in purchasing assorted collections of different items in bulk, which are then sold individually; and ExcelOptions, a small enterprise that provides the full gamut of business solutions for small- to medium-sized businesses as well as individuals. These services include website design, hosting and maintenance, financial model creation, software development, database construction, tax preparation, graphics/logo conception, and personal training/group seminars on Excel. As if that isn't enough, Artz has authored a book that provides a guide to the most commonly used intermediate to advanced Excel functions. He also enjoys the martial arts and currently holds the rank of 1st Dan Black Belt in Tang Soo Do.

BIG HORIZONS

Artz has no plans of slowing down and hopes to continue climbing the corporate ladder, start a family, and expand his entrepreneurial ventures. "I am not the type of person who would ever enjoy the proverbial 'nine to five' job performing tedious and redundant tasks. The thought of that makes me cringe. The best part of my job is that every day is different; there is always a new problem or challenge waiting to be solved, and I can constantly test the limits of my abilities." But his greatest satisfaction comes from helping people through technology to streamline what were previously arduous, time-consuming tasks.

SPECIAL ENGINEERS WEEK PRESENTATION

Pursuing STEM Diversity: The "Problem" of Identity in American Engineering

Monday, February 20, 6:00 to 7:00 p.m., Main Building, Rooms 130-131

Presenter: Amy E. Slaton, Ph.D., professor, department of history and politics, Drexel University

American engineering occupations are greatly underrepresented by women, minorities, and persons with disabilities. What new initiatives are being done to change the trend?

Additional details available at www.sgps.psu.edu/eng-diversity/

Summer 2012 Course Schedule

| Summer I: 3/30-6/23 | | 14 Week: 3/30-8/7 | | Summer II: 6-19/8-7 | |
|--|--|---|-----|------------------------------------|--|
| MON.-WED. | TUES.-THURS. | SPRING 14 | DAY | MON.-WED. | TUES.-THURS. |
| SYSEN 597 Eng Systems Modeling | IN SC 480 Software Development Lifecycle | SYENG 582* Real-time Software Design and Analysis | | IN SC 497 Network Mgmt 2 | IN SC 497 Fund Info Sec |
| INSC 497 Bus Intelligence | SWENG 497 SW Integration | SYSEN 510* Eng Analysis | | SYSEN 510 Eng Analysis | SYSEN 497 Wireless Positioning Systems |
| IN SC 539 IT Sys Seminar | ENGMT 501 Eng Mgmt Sci | | | ENGMT 530 Eng Law | |
| | | ENGMT 539 Eng Mgmt Strategy | | | |

*Held at The Philadelphia Navy Yard

SAVE THE DATE

February 20

Engineering Lecture: Pursuing STEM Diversity: The "Problem" of Identity in American Engineering

February 28 to March 5

Spring Break

May 4

Commencement

Courses to Consider

SYSEN 597 Special Topics: Engineering System Modeling

M/W in Summer I: Develop an understanding of the various modeling paradigms appropriate for conducting digital computer simulation for many types of systems. Students will learn to use various toolboxes in Matlab extensively to simulate systems. Students will also report on a particular technique and team to implement a chosen system model. *Elective for SYSEN, and open to MEM and SWENG students who are comfortable with calculus.*

SYSEN 497 Special Topics: Wireless Positioning, T/R in

Summer II: This class explores the evolution of wireless positioning and range-finding as well as the proliferation of services that leverage such systems.

Elective for SYSEN and SWENG

Reminder: Capstones are scheduled every other semester, so in summer '12 INSC 539 and ENGMT 539 are offered, and will next be available in spring '13, while SWENG 500 and SYSEN 594 will next be available in fall '12.

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