USI participates in consortium to promote workforce and economic development

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The University of Southern Indiana’s Pott College of Science and Engineering will have a part in promoting partnerships to transform and rebuild the regional economy over the next three years as a member of a consortium which has received a $5.1 million grant.

The U.S. Department of Labor awarded the grant to the State of Indiana through its Workforce Innovation in Regional Economic Development (WIRED) initiative.

The consortium, Southwest Indiana Go (SWIGO), will use the money to strengthen collaboration between workforce development and economic development organizations and invest in workforce development strategies.

Dr. Scott A. Gordon, dean of the Pott College, said that, as a member of the SWIGO consortium, the University will have responsibility for a $600,000 portion of the grant.

We have brought together a strong group of individuals and organizations who will work together and develop the necessary strategies to maximize our use of education, workforce, and economic development to grow our economy.

—Andy Goebel

Generous donors provide more than $2 million in cutting-edge technology for new center

Generous donors have responded with enthusiasm to the need for programmatic support that will provide state-of-the-art teaching and learning facilities in the new Business and Engineering Center.

Gifts pledged to date bring the campaign total to $2,029,000.

Dr. Scott A. Gordon, dean of the Pott College of Science and Engineering, said private gifts for instructional support will provide the engineering program “the ability to teach cutting-edge curricula with the tools of tomorrow, producing graduates that are well prepared for the workplace of the future.”

Major gifts to support the engineering program in addition to those announced in the fall issue of this newsletter include the following:

- Alcoa Foundation, $50,000, power and machines lab and classroom
- Casino Aztar, $25,000, physics classroom
- Deig Bros. Lumber and Construction Company, $25,000, computer lab (shared space for business and engineering)

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Letter from the Dean

Welcome to the spring 2008 edition of the Pott College of Science and Engineering newsletter, *The Periodic Review*. Since our last newsletter, many exciting events have occurred and many accomplishments were achieved. The faculty, staff, and students continue to work hard at making USI a leader in science, technology, engineering, and mathematics (STEM) education.

This spring we have been busy with a variety of projects, plans, and initiatives, such as finalizing plans for the new Business and Engineering Center; working through the design aspects for renovations of the "old" Science Center; developing and finalizing the 2008-09 college budget requests, and presenting this information at the annual USI budget hearings; hosting another highly successful Pott Foundation Tri-State Science and Engineering Fair; and finalizing proposals to offer degree programs in biochemistry and environmental science.

This edition of *The Periodic Review* provides details on just a few of the many exciting activities accomplished or under way in the Pott College. Enjoy.

Dr. Scott A. Gordon
Scott A. Gordon, Dean
Pott College of Science and Engineering

“WIRED” continued from page 1

based activities for students. (See story on page 5 about 2008 summer workshops.)

Another priority is to expand the Project Lead the Way curriculum which introduces high school students to the scope, rigor, and discipline of engineering as a career field.

Andy Goebel, chair of the Regional Workforce Board of Southwestern Indiana, which led the WIRED grant application, said, “We appreciate the support of both the Department of Labor and State of Indiana for providing assistance to our efforts to grow the economy of Southwest Indiana. We share their belief in the importance of education and training to prepare our workers — current and emerging — for today’s changing economy. We have brought together a strong group of individuals and organizations who will work together and develop the necessary strategies to maximize our use of education, workforce, and economic development to grow our economy.”

The SWIGO consortium also includes the Southwest Indiana Regional Workforce Board, Evansville Regional Business Committee, Inc., University of Evansville, Vectren Corporation, Welborn Foundation, Vincennes University, Ivy Tech Community College, the City of Evansville, and other organizations active in the economic development of Southwest Indiana.

ICHE approves new program in advanced manufacturing

Federal funding approved for equipment in new building

The Indiana Commission for Higher Education has approved the bachelor’s program in advanced manufactured for implementation in the fall by the USI Pott College of Science and Engineering. ICHE approved the program at its March meeting.

Dr. Linda Bennett, USI provost and vice president for Academic Affairs, said, “This program continues USI’s tradition of being responsive to the needs of the region. Graduates of the program will contribute to the economic growth of Indiana and the Tri-State area.”

The new Business and Engineering Center scheduled to begin construction this year will contain state-of-the-art laboratory equipment for the advanced manufacturing program as well as engineering. Federal funding of $750,000 was included as part of the Fiscal Year 2008 Omnibus Appropriations measure signed into law by President Bush in December.

USI President H. Ray Hoops expressed appreciation to Congressman Brad Ellsworth ’81, Indiana senators Richard Lugar and Evan Bayh, and the congressional office of Baron Hill for their support of the funding.

Renovation of Science Center begins in summer

The original Science Center, which opened in 1969 as the first building on campus and was last renovated in 1999, will get an update over the next three summers.

Conner Architecture of Evansville has prepared the plans. The renovation will include improvements to office areas and conversion of some storage space to laboratory space. Improvements also will make laboratory space more efficient and bring it up to the demands of modern teaching and learning.

Phase one of the project will begin on the third floor with renovation of offices, classrooms, and labs. The improvements will include a study lounge for students; new chemistry, geology, and physics labs; and a boardroom for the Pott College of Science and Engineering.

In 2009, the project continues on the second level with renovation of offices and upgrades to classrooms and labs as well as improvements that will make the corridors more consistent with the appearance of the Torrington Wing which opened in 2003. Similar renovations on the first level in 2010 will complete the project.

Completing the project in three phases over the summers will provide minimum disruption to class schedules.
Career of Evansville’s Richard Merrick inspires new generation of engineers

Engineering students have an opportunity to learn about the significant work of an Evansville engineer thanks to a gift from his family.

Richard H. Merrick was a mechanical engineer, an inventor, international consultant, and lifelong learner. He retired in 1984 from Arkla Industries, where he headed the engineering department. Merrick held 23 patents. Most of his work was related to absorption refrigeration.

Merrick died in August 2006. His family has presented to the University many of his books on engineering, including sets of handbooks from the 1980s through 2005 from the American Society of Heating, Refrigerating, and Air-Conditioning Engineers.

Materials related to his patents, including handwritten notes and sketches, are included in the gift as well as tools related to engineering.

David Ellert, instructor in engineering, uses some of the resources in teaching. Others are preserved in a controlled environment in University Archives of the Rice Library and are available to researchers.

Through a series of changes, Arkla Industries ultimately became a part of an Italian company, Robur Corporation. Merrick is included in the Robur Wall of Fame, which also includes Albert Einstein and Mother Teresa.

As previously announced in this newsletter, the Merrick family gave $25,000 to the Campaign for the Business and Engineering Center to fund a heat/thermodynamics laboratory.
Dr. Shadow J.Q. Robinson’s interest in physics has a lot to do with its widespread implications.

“Your goal is to explain everything in the universe. If it happens inside this universe, physics is going to try to answer why that happened,” he said.

The assistant professor of physics is the recipient of the 2007-08 USI Foundation Outstanding Teaching by New Faculty Award. The award recognizes a faculty member who has been with the University less than six years. Since joining the faculty of the Pott College of Science and Engineering in 2003, Robinson has taught all levels of physics, from introductory courses to independent topics.

Robinson is committed to teaching physics because he can share the secrets of the universe with more people.

He encourages students in the classroom to interact.

“When they talk to each other and develop their ideas, I may see quickly where they have a misconception. It is often difficult to see that when they are putting down line after line of mathematics,” he said.

Robinson also wants physics students to develop skills in writing and speaking about scientific matters. In some courses, he includes assignments requiring students to write research papers and make class presentations. If he were responsible for hiring employees or approving requests for grants, he would trust the person who could explain his or her ideas well.

“People can get far if they are good at explaining their ideas,” he said. “If they can’t talk to others about their ideas, it doesn’t matter how good the ideas are.”

Students say Robinson’s enthusiasm for physics is contagious. Kyle Besing, a mathematics major with a physics minor, completed Robinson’s special topics course in Einstein’s theory of general relativity last spring.

“I couldn’t help but think that if he was excited about the material, then it must be worth learning,” Besing said.

Robinson earned bachelor’s degrees in mathematics and physics at the University of Kentucky and a doctorate in physics at Rutgers University.

The USI Foundation Outstanding Teaching by New Faculty Award includes a $1,000 cash stipend and a $1,000 professional development grant.

Faculty awarded summer research fellowships

Three faculty members from the Pott College have received fellowships for summer research activities.

Two members of the mathematics faculty were among 11 USI faculty members awarded 2008 Lilly Summer Research Fellowships.

Dr. John R. Donnelly, assistant professor of mathematics, will conduct research on the topic “Ruinous Sets, Weakly Ruinous Sets, and Thin Sets.”

Dr. Melody Lee, assistant professor of mathematics, will study the topic “How Rational Numbers are Presented in U.S. and Japanese Textbooks and the Possible Effects of Presentation in Excelling Performance of U.S. Students.”

Dr. Shadow J.Q. Robinson, assistant professor of physics, is one of three University faculty members receiving the new USI Foundation Summer Stipend for Research. His topic is “The K Quantum Number in 50Cr.”

Jeannie Collins promoted

Dr. Jeannie T. Collins will be promoted to associate professor of chemistry effective August 25. The promotion was approved by the USI Board of Trustees at its March meeting.

Collins joined the University in 1999. She earned a doctoral degree at the University of Southern Mississippi in 1998.

In addition to her teaching responsibilities, Collins serves as the USI faculty representative for the Barry M. Goldwater Scholarship, a nationally competitive scholarship program that recognizes students pursuing careers in science, mathematics, and engineering. (See page 8.)
Joint committee studies how to attract students to teaching careers in science and mathematics

A joint committee representing the Pott College of Science and Engineering and the USI Department of Teacher Education is at work on an issue that affects the nation and Southwestern Indiana: a shortage of well-qualified science and mathematics teachers in K-12 classrooms.

Dr. Linda Bennett, USI provost and vice president for Academic Affairs, has charged the committee with identifying strategies to reverse this trend.

The committee will review the UTEACH model developed at the University of Texas at Austin. This model encourages math and science majors to enter the teaching profession by offering a math or science degree plan integrated with teacher certification, financial assistance, and early teaching experiences for undergraduates.

Bennett said the study of the UTEACH model is a starting point to capture “best practices” and look at the model’s applicability to USI teacher education but not a directive to adopt it.

The committee also will study recruitment and retention patterns in science and mathematics education programs and review USI curricula in science and math teaching programs for consistency with area school needs.

Dr. Kathy Rodgers, a member of the committee and chair of the Pott College Department of Mathematics said, “USI is committed to providing excellent opportunities for future teachers of science and mathematics. We subscribe to the philosophy that the best way to improve secondary science and math education is to ensure that a qualified teacher is in every classroom; this will happen only when universities attract the brightest and best to the teaching profession and then provide positive experiences modeled by outstanding educators in content-rich courses.”

In addition to Rodgers, members of the committee are Dr. James Bandoli, Dr. Tony Maria, Dr. Henri Maurice (chair), Dr. Kent Scheller, and Dr. Jeff Seyler from the Pott College and Dr. Paul Parkison and Dr. Jeff Thomas from the Department of Teacher Education.
Eileen Weber promoted

Eileen Weber ’98, chemistry, has been promoted to Ultraviolet Coatings (UV) product manager at Red Spot Paint & Varnish Co., Inc., in Evansville. She previously served as UV research and development manager for the company. Weber was a USI Presidential Scholar. She is a member of the Pott College of Science and Engineering College Advisory Board.

Chemistry graduate Eric Adams is alumnus in residence

A chemistry graduate who has studied and worked throughout the United States and internationally talked to Pott College students on the topic “What Can’t You Do with Your USI degree?” as alumnus in residence.

Eric A. Adams ’86 is president, CEO, and director of enGene Inc. He has more than 19 years’ management experience in international business development, marketing, mergers and acquisitions, and sales in pharmaceutical and related health-care industries.

A biotechnology company, enGene is developing an innovative therapeutic platform, which is targeted to induce normal cells in the intestinal tract to produce a wide range of proteins to treat such diseases as diabetes, obesity, GI disorders, and hemophilia. Adams is co-founder of a biopharmaceutical technology company, a founding member and director of Omnitech Capital Corporation, and a member of the Pott College of Science and Engineering College Advisory Board.

After graduating from USI, Adams studied for two years at Universitäet Regensburg in Germany as a scholarship recipient through the German Academic Exchange Program. He completed a master’s degree in international business studies at the University of South Carolina in 1988 and returned to Germany to work for four years for Fresenius, a global health-care company. He also has worked for Abbott Laboratories in Abbott, Illinois, and Advanced Tissue Sciences in La Jolla, California. He and his family live now in Vancouver, British Columbia.

Record number of entries in Tri-State Science and Engineering Fair

The 2008 science and engineering competition attracted more than 500 middle school and high school students completing 465 projects. Senior Grand winners Stacey Vosters and Hannah Scudder, both of North Daviess Senior High School, competed at the Indiana State Science and Engineering Fair in Greencastle and are attending the Intel International Science and Engineering Fair in Atlanta in May. Alternate winners and the Junior Grand winner and alternates also attended the state competition.

David Albright, site manager for SABIC Innovative Plastics, judges a high school engineering project. Albright is a member of the engineering industry advisory board for the Pott College’s engineering program.
**Engineering students in co-ops**

Demand by area companies continues to be high for engineering students to complete internship and co-operative programs. More than 25 students will gain practical experience working side-by-side with professional engineers at companies throughout the Tri-State this summer.

Seven students graduating in May will bring the total number of engineering graduates to 44 since the first class completed the program in 2004. Spring graduates are in negotiations with potential employers.

Companies providing internship and co-op experiences for engineering students include AK Steel; Alcan Aluminum; Alcoa; APEX Engineering; ARC Construction; Bernardin Lochmueller and Associates; Berry Plastics; Bowen Engineering; City of Evansville; Clark Dietz Inc.; Consolidated Grain & Barge; Duke Energy; ECS Solutions; Electronics Research, Inc.; Frontier Kemper Contractors; GAF Elk Materials; Guardian Automotive; Indiana Tube Corp.; Masterbrand Cabinets; Mead Johnson Nutritional; Navsea War Centers – Crane Division; PCI Design; PPG Industries; PPMI Construction; QualEx, Inc.; Ragle Construction, Inc.; Red Spot Paint; Shamrock Engineering; Toyota Motor Manufacturing Indiana; Traylor Bros. Contractors; Three I Engineering; Vectren Energy Corp.; and Whirlpool Corp.

**INDOT offers engineering scholarships**

The University of Southern Indiana is among seven Indiana universities to offer new engineering scholarships from the Indiana Department of Transportation (INDOT).

INDOT created the new scholarship to educate Hoosier students and encourage graduating engineers to remain in the state. The scholarship gives recipients more than $3,000 a semester for up to five years of college, including up to two years of graduate school. Each academic semester, INDOT will make scholarship payments to 20 engineering students. In return, recipients will work at INDOT in full-time paid positions during the summer. After graduation, scholarship recipients will work six months at INDOT for each academic semester they received a scholarship.

“Indiana’s transportation system is our state’s economic future, and to create a world-class transportation system, we need world-class engineers,” said INDOT Commissioner **Karl B. Browning**.

Other schools include Purdue University, Rose-Hulman Institute of Technology, University of Evansville, University of Notre Dame, Tri-State University, and Valparaiso University.

**Pott College promotional video wins awards**

The production crew of a video created to promote the Pott College of Science and Engineering has received three gold and two silver awards in the 2007 International Davey Awards.

The USI Office of Instructional Technology Services produced the DVD entitled “Learning Science by Doing Science.” The Davey Awards are judged by the International Academy of Visual Arts. More than 4,000 entries were received from around the world.

Visit www.usi.edu/science to view the video which introduces prospective students and their families to the programs and special opportunities offered by the Pott College.
Two new academic programs under study

The Pott College of Science and Engineering will propose the addition of two academic programs—environmental science and biochemistry—to the University’s Academic Planning Council. Both programs respond to changing needs in the workplace and workforce needs in Southwest Indiana.

The program in environmental science would include three specialty area options: water resources, resource measurement and analysis, and environmental science and society.

The proposed program in biochemistry includes a track leading to a biochemistry degree certified by the American Chemical Society in addition to a track that provides for a greater mix of chemistry and biology courses.

Implementation of new academic programs is contingent on funding and appropriate approvals.

Jamie Johnson named Goldwater Scholar

Jamie Johnson, a junior majoring in chemistry, is among 321 college students nationwide to be named a 2008 Goldwater Scholar.

The award recipients were selected on the basis of academic merit from a field of 1,035 mathematics, science, and engineering students nominated by the faculties of colleges and universities throughout the country. The student representative to the USI Board of Trustees, Johnson has maintained a 4.0 grade-point average. Her career goal is to become a physician.

The Goldwater recognition program was established by Congress to encourage excellence in science and mathematics. The scholarship will cover the cost of tuition, fees, books, and room and board up to a maximum of $7,500 for the 2008-09 academic year.