

# engineers

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## January 2001

### Awards and Honors

**Joel Brumm**, Kentucky Transportation Center, was named December Featured Artist by 3D Nature for his work in creating 3D 360-degree renderings of roadway design alternatives using World Construction Set software. Joel, a GIS specialist with the Center, created several versions of a road upgrade as part of a research project funded by the Transportation and Community Systems Preservation program of FHWA and conducted by KTC in cooperation with Bluegrass Tomorrow and the Bluegrass Area Development District. The Policy and Systems Analysis Division of KTC has been testing various 3D and 4D software packages through use of a focus group to assess the usefulness of these software in helping citizens participate in decisions about new public infrastructure. Joel has also been creating "virtual reality" models for this same project to enable the public to explore potential construction options in real time.

Joel's work can be seen by going to 3D Nature's web site at <http://www.3dnature.com/> and clicking on "featured artists".



**Dr. Keith Rouch**, mechanical engineering, has been elected to Fellow grade of the ASME International. The Fellow grade is the highest elected grade of membership in the 125,000,

member international organization, the attainment of which recognizes exceptional engineering achievements and contributions to the engineering profession.

Dr. Rouch's Fellow citation states "he has contributed to the development of finite element methods for analysis of rotating machinery and bearings, as well as to the development of methods for active control of vibrations in machining. He has applied his industrial experience in his roles of university research, teaching, and administration. In addition, he is recognized for his expertise in finite element analysis of large grinding mills for the ore processing industry and for the development of a multipad bearing design for such mills."

Dr. Rouch, joined the UK Mechanical Engineering faculty in 1985. Prior to coming to UK, he worked for 19 years at the Allis-Chalmers Corporation. He currently serves as chair of the department. Dr. Rouch has five U.S. patents to his credit. He earned BS and MS degrees in mechanical engineering from Purdue University and his Ph.D. degree from Marquette University. He is a registered professional engineer in both Kentucky and Wisconsin.

## Journal Publications

**Joe Crabtree**, Kentucky Transportation Center, is the author of the paper "Model MACS: A State-Developed System for Electronic Screening of Commercial Vehicles" selected for publication by the Intelligent Transportation Society of America. The paper will be presented at the Society's 2001 Annual Meeting on June 4-7 in Miami Beach, Florida.

**Dr. Nader Mir**, electrical engineering, has had the paper, "Applications of a New ABR Traffic Controller in Communication Systems," (with J. Lu), accepted for publication by the International Journal of Communication Systems. In addition, his paper "MPLS Technology for IP Voice Communications," will appear in the Journal of Communication Systems Design, no.2, pp. 16-19, Feb 2001

**Jennifer Walton and Joe Crabtree**, Kentucky Transportation Center, are the authors of the paper "Remote Monitoring: An Innovative Approach to Commercial Vehicle Enforcement." selected for publication by the Intelligent Transportation Society of America. The paper will be presented at the Society's 2001 Annual Meeting on June 4-7 in Miami Beach, Florida.

## Presentations



**Dr. Nader Mir**, electrical engineering, presented the paper "Performance Modeling of Multimedia Traffic in Mobile Wireless Networks," at the Proceedings of IEEE Military Communications Conference (MILCOM '2000) Los Angeles, CA, October 22-25, 2000.

## Research Funding

The Transportation Appropriations Bill recently approved by the U.S. Congress provided \$1.5 million for a project to improve commercial vehicle safety in Kentucky. For this project, the **Kentucky Transportation Center** will work with the Kentucky Transportation Cabinet to equip selected commercial vehicles with onboard engine monitoring, brake sensing, and crash notification systems. The technology, developed by Veridian Engineering and the Calspan/University of Buffalo Research Center, will be deployed on approximately 100 vehicles. The Kentucky Transportation Center will recruit and select participating motor carriers and will evaluate the technology once it is deployed. For more information on this project, contact Joe Crabtree, 7-4513 ext 241 or [crabtree@engr.uky.edu](mailto:crabtree@engr.uky.edu).

## Professional Activities

**Dr. Doug Kalika**, chemical and materials engineering, participated on an NSF panel review for the "International Research Fellowship Program", Washington, DC, January 4 and 5, 2001.

**Dr. Nader Mir**, electrical engineering, was the Conference Session Chair of the TCP/IP Networking Performance Session at the IEEE International Conference in Communications, Helsinki, Finland, June 11-15, 2001.

**Dr. Nader Mir**, electrical engineering, served as an NSF Panelist for Networking Grant Proposals, Division of Networking & Communication Research & Infrastructure, NSF, VA, Nov. 13-14, 2000.

## Workshop Development and Presentation

**Dr. Jim Smart**, chemical & materials engineering, and William Leonard will present the short course, Environmental Sampling and Analysis, on March 16, 2001 at Crouse Hall, College of Engineering in Paducah. The 4-hour short course deals with the practical aspects of environmental sampling and analysis and will focus primarily upon collection methods for samples in air, water, and soil medias and laboratory analyses of these samples. It is designed for local industrial, educational, and Commonwealth employees throughout Western Kentucky. For information, call Dr. Smart at (270) 534-6348 or email <jsmart@engr.uky.edu>.

The **Kentucky Transportation Center** will serve as videoconference hosting site for the Federal Highway Administration's (FHWA) video conference discussing the recently updated Millennium Edition of their publication, *Manual on Uniform Traffic Control Devices (MUTCD)*. This publication serves as the standard for highway signs and markings in Kentucky and other states. The conference will be broadcast live via satellite to the nation on March 20 from 11 am to 1:30 pm EST. The text of the 1000+ page MUTCD can be found on and downloaded from <http://mutcd.fhwa.dot.gov/>

## Student News and Activities

The **UK National Society of Black Engineers (NSBE)** is hosting a Leadership Conference on January 27, 2001 at the UK Student Center. All UK student organizations have been invited to attend. The Conference will provide leadership skills training for members of UK student organizations. Several NSBE's national board members will attend and serve as workshop

facilitators. De Asa Nichols, formerly the Lexington Chamber of Commerce Minority Business Director, currently the Strategic Planning/Supplier Diversity at Toyota, will be the event's closing speaker. Luncheon sponsor is Cummins Engines, Columbus, Indiana. Charmaine Neal, UK NSBE vice-president, serves as chair of the conference planning committee. You may contact Ms. Neal for more information by e-mail at <charmaineneal@hotmail.com>.

## Miscellaneous

### Update on the UK College of Engineering in Paducah Bonita Lykins, Contributor

As the UK Extended Campus Engineering Program enters its 4<sup>th</sup> year in existence, we have begun to accomplish a number of milestones that previously existed only in our wildest imaginations. With the steady increase of our student population, we are now fully staffed with eight full time UK engineering professors (four chemical and four mechanical) along with the five jointly appointed faculty from Murray State University, a lab manager, a student services director, an office assistance, and a part time coordinator of co-op and internship opportunities. Increased student numbers as well as additional faculty and staff have resulted in diverse, noteworthy activities and student involvement.

- The program director, Dr. William Murphy, remains active in accreditation activities by serving on the Engineering Accreditation Commission of ABET. He is a member of the board of directors of the ASHRAE Learning Institute, an educational arm of the American Society of Heating, Refrigerating and Air-Conditioning Engineers. Dr. Murphy offers short courses for continuing education certification for practicing HVAC specialists.
- Dr. Jack Leifer is currently organizing the PADucah Weightless WildcatS (PAWWS) group. Students will be submitting a proposal for an experiment designed to fly in the NASA Reduced Gravity Student Flight Opportunities Program. Dr. Leifer has been working with Dr. Suzanne Smith and Dr. John Main of Lexington to initiate this endeavor in Paducah.
- Dr. Rhonda Lee is working with Sue Scheff, director of women in engineering on the Lexington campus, to establish a SWE program on the Paducah campus.
- Mike Lindsey, industry extension specialist for CRMS, works part time as the coordinator of co-op and internship opportunities for engineering students in Paducah. Recently, Mike submitted a list of fourteen companies interested in providing

internship positions for the spring and summer semesters. Currently, we have approximately six students participating.



Derek Warford, CME senior and treasurer of the AIChE-Paducah student chapter (left), accepts a check from Mr. Ralph Young, environmental manager, Air Products and Chemical, Inc., Calvert City, to assist with travel expenses for COE-Paducah students attending the AIChE national convention in Los Angeles, California

- In November four CME students representing the UK Paducah student chapter of the American Institute of the Chemical Engineers (AIChE) along with their advisor, Dr. David Silverstein, attended the AIChE national meeting in Los Angeles. A donation of \$1000 from Air Products and Chemical, Inc., assisted the student group with expenses.
- On January 11 Extended Campus will hold its second annual scholarship banquet to honor private scholarship donors and scholarship recipients from the Paducah program. In addition to general academic scholarships funded by the program, we are most fortunate to have three privately funded scholarships: the Plumbers and Steamfitters, Local 184, Scholarship, an endowed scholarship donated by local members of that organization; the J. M. Harper Memorial Engineering Scholarship, established by Billy Harper (BSME '66), president of Harper Industries, Inc., in memory of his father; and the Helen Murphy Scholarship Fund, an endowed scholarship established by Dr. William Murphy and Dr. Marie Petrites-Murphy in honor of Dr. Murphy's mother.
- On January 19 our Engineering Club, a student organization that serves as an umbrella for various student chapters of professional engineering societies, is sponsoring our first annual job fair. Club members have contacted about fifteen businesses and

industries to participate in the fair. These businesses and industries have indicated possible opportunities for summer work, internships, and permanent employment for the Paducah students.

- Students, staff, and faculty are busy preparing for our second annual Engineers Day Open House scheduled for February 24. The event will showcase laboratory tours; laboratory and computer demonstrations; displays featuring local businesses, industries, and professional organizations as well as exhibits by UK CoE at Paducah, Murray State University, and Paducah Community College; and student contests and competitions. Engineering students affiliated with the Engineering Club, the student chapter of AIChE, the student chapter of AIAA, and the potential Paducah chapter of SWE are sponsoring the contests and activities which include the edible car contest, the egg drop contest, the paper airplane contest, the bridge building contest, and the poster contest as well as the popular Who Wants to be an Engineer competition. Local professional organizations as well as businesses and industries are donating exceptional prizes for the event. More than 200 guests participated last year. The 2001 showcase should be better than ever.
- The CME-Paducah faculty are currently engaged in collaborations with Murray State and CME-Lexington faculty to obtain a KY NSF EPSCoR infrastructure grant. If awarded, this grant will be used to establish a consortium of environmental laboratories in the state. The new laboratories will enable the three institutions to undertake the environmental research necessary to tackle the environmental challenges Kentucky now faces and will face in the future.

The 36th Annual Kentucky Transportation Forum, coordinated by the **Kentucky Transportation Center**, was held November 28, 2000 with 350 transportation professionals from across the Commonwealth attending. This year's theme, **Rural Road Safety**, featured speakers from the University, state and federal governments, and industry.

Among the Forum's activities was the announcement of inductees into the Kentucky Transportation Hall of Fame. Those honored for 2000 were Paul A. Faulkner (BSCE '51, MSCE '56) (posthumous) and Leonard Lawson. The Kentucky Transportation Hall of Fame honors those residents of the Commonwealth who by their foresight, dedication, leadership, perseverance, and integrity have significantly enhanced transportation systems in the Commonwealth.

Additionally, individuals completing the Roads Scholars and Road Masters Training Programs, conducted by KTC in cooperation with the Kentucky Transportation Cabinet, were recognized. A

total of 117 transportation employees earned the designation "Roads Scholar" for completing a series of management and operations training courses on road management. Since its inception in 1988, 589 individuals have achieved this designation.

The Road Master Training Program, which disseminates advanced technical information primarily for those pursuing management positions, recognized 186 individuals for completing the program. To date, 255 local or state employees who have earned their "Road Master" designation.

## Events

**Introduce a Girl to Engineering Day** will be held, Friday, February 23, 2001. This event was designed especially to introduce female high school students to the field of engineering. A full day of activities is planned. The day's keynote speaker is Elaine Duncan, President, Paladin Medical, Inc., Stillwater Minnesota, a (BSME '74) and Hall of Distinction inductee. Other activities include a panel discussion by women engineers on "Do I Love my Work, Let me Count the Ways". The always popular student breakout sessions with the visiting high school students, laboratory demonstrations, and tours of Engineering facilities round out a fun and informative day. For more information, contact Sue Scheff, at 7-4178 or <[sscheff@engr.uky.edu](mailto:sscheff@engr.uky.edu)>.

**Engineers Day Open House** will take place Saturday, February 24 from 9 am to 1 pm. If you know of a pre-college student, teacher, counselor, etc. who might be interested in receiving a packet of information, please send their name and address to Dr. Donn Hancher, 7-4857 or [hancher@engr.uky.edu](mailto:hancher@engr.uky.edu). Volunteers are needed to assist with EDay activities. Contact Dr. Hancher if interested in volunteering on EDay.