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# THE CEEN SCENE

PETER KIEWIT INSTITUTE  
OMAHA, NE

<http://www.ceen.unomaha.edu>

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## **Emerging Organization:**

The Society of American Military Engineers (SAME) is an emerging professional engineering association that started to take shape in PKI last spring. The SAME organization was created to connect military and federal government engineers with those in the private sector for the purpose of improving the engineering potential of the United States. The student chapter of SAME at PKI was created two years ago, but initially lacked activity and student interest. New leadership this year comes from President Andrew Stamp and Vice President Mark Hanus. SAME has now grown significantly and is becoming a familiar name around PKI. SAME is taking an initiative to bring national attention to PKI by starting a Solar Car Project. Last fall, SAME organized a tour of the First National Tower. In February, SAME invited the Lamp Rynearson & Associates Company to demonstrate their new 3D laser data capture surveying system. The organization plans a tour of OPPD's Valmont Wind Energy Research Station once it is operational. For more information on joining SAME and its benefits, contact Andrew Stamp or Mark Hanus at [sameomaha@yahoo.com](mailto:sameomaha@yahoo.com).

Daren Scott

## **Employer Spotlight:**

An Omaha based company you should be interested in upon graduation is Bass & Associates, Inc. They specialize in information technology consulting. According to their website they work with project management, system analysis, software development, contract programming, network support, and database technologies. Bass & Associates work with installing and implementing platform-specific software for their clients. Their employees install, test, troubleshoot and program the specific platforms. Computer Engineers have not only

strong programming skills, but extensive knowledge in hardware that is a great asset. Applications vary from designing new databases or re-engineering existing ones to development in data modeling and security.

Some of their current available positions include C++, Seibel, ETL, and JAVA Developers. Information about job openings is available at their website [www.bass-inc.com](http://www.bass-inc.com) or by phone at (402) 346-1505 or (800) 588-1505.

Rachel Krzycki

## **Did You Know?:**

Intel's commitment to the microprocessor led IBM to choose Intel's 8088 chip for the CPU in its first PC. The 8088 is an 8-bit chip with a processing speed of 4.77 MHz. At that time, Intel's own 16-bit 8086 was more powerful and had been released earlier. However, the 8088 was chosen because its 8-bit data bus required less costly motherboards. In the early years of the 8088, IBM required a second source to make the chip. AMD subsequently signed a licensing agreement. This effectively created Intel's leading competitor.

Dustin Koppit

## **Faculty Research:**

Currently, several research projects are underway in the CEEN department. Dr. Nguyen's focus is Code Division Multiple Access (CDMA) communications. Characterized by a high capacity small cell, employing self encoding spread-spectrum technology, CDMA is the signal processor for the cellular industry. Dr. Nguyen believes two cell phones programmed with identical frequencies can be processed at the same time without interference and/or specified time intervals.

Dr. Sharif-Kashani heads the College of Engineering and Technology's High Speed Networks Research Group. Dr. Sharif is investigating the quality of video broadcast in real time over high-speed

Internet 2. The research specifically involves detecting how many frames per second are lost through video transmission, primarily based on SCOLA transmission to other University's. SCOLA is a non-profit educational organization that transmits international television programs for use via satellite.

Jamie Ruddick

## **UP Headquarters Visit:**

Dr. Chen's CEEN 2250 Seminar Class visited the Union Pacific headquarters building in downtown Omaha on March 12, 2003.

UP is the largest railroad system in North America, covering 23 states across two-thirds of the USA. Students toured three of the most important areas. The Network Operations Center continuously traces a complicated railroad system and maintains contact with about 6800 locomotives. Students learned that UP controls and maintains a complex microwave and cable optic system that parallels their 33,000 miles of railroad.

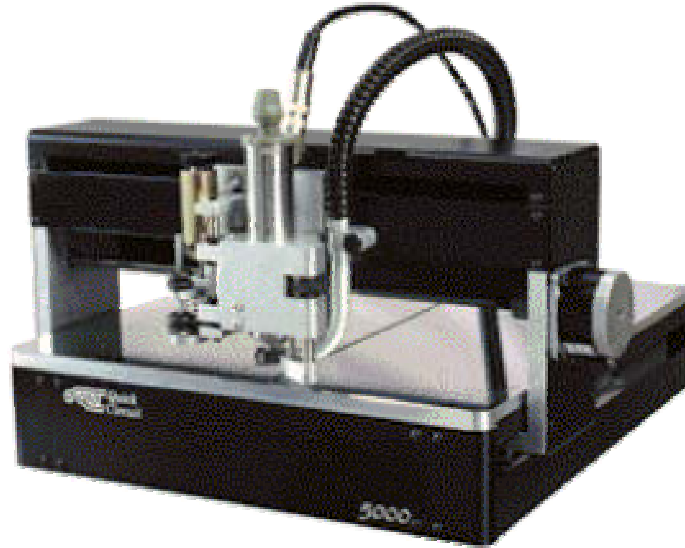
Next, at the Mainframe computer center, the students could witness the tremendous changes the computer room had experienced over the years. A combination of old and new mainframe computers left empty space, showing the high degree of integration the new technologies have provided.

Finally, the students visited the Telecommunication Center, where computers and other electronic devices are repaired. Most interesting was the shielded room where final RF interference testing of equipment takes place.

Students asked many questions regarding the railroad system, technologies, accuracy and redundancy of the systems, and safety procedures.

UP headquarters will move across the street to the new building which will be completed by early next year.

Ardian Gjoca



### **Making the Cut**

There is no longer a need to send your circuit board design to a slow and costly board house to have a prototype made. In the summer of 2002, the Computer and Electronics Engineering Department at PKI purchased a T-Tech Quick Circuit high-speed circuit board plotter at the request of Dr. Lim Nguyen using undergraduate equipment funds. The Model 5000 with High Speed Spindle allows Senior Thesis projects and other advanced projects to create analog, digital, RF and microwave prototype circuit boards. The device accepts standard CAD files and uses a 100,000-rpm spindle to etch double and single sided printed circuit boards. Other features include a vacuum particle removal system. T-Tech advertises that a design with average complexity can be completed in just over one hour without using chemical etching. It is currently set up in PKI 208 with key access and requires instructor permission for use.

Kenneth Redler