The annual Seaton Society Banquet brings together students, faculty, and alumni of the Kansas State University College of Engineering each fall. Highlights of the event include the presentation of Professional Progress Awards to young alumni from each department and induction of the college’s most distinguished alumni into the College of Engineering Hall of Fame.

Professional Progress Award recipients from the mechanical and nuclear engineering department were David Harris and Rick Martineau. David Harris (B.S. ’88) is a vice president, air quality control services, Black and Veatch; and Rick Martineau (B.S. ’89, M.S. ’90) is the service campaign program manager at Los Almos National Laboratory.

Among the Hall of Fame inductees was Thomas Mistler who earned his B.S. degree in 1963, followed by a M.S. degree in 1966, both in nuclear engineering. While on campus, he was involved with American Nuclear Society, Steel Ring, and Blue Key.

“It was easy to get to know other students at K-State,” Mistler said. “I had a very rewarding experience and made friendships that I still cherish today.”

His favorite class was reactor engineering taught by Dr. William Kimel. Mistler said the skill to think critically is the most useful skill he gained from his engineering education at K-State. He said diverse topics and problem-solving exercises improved his skills of analysis and thoughtful evaluation. Completion of his master’s research project also challenged him to further develop his problem-solving training and critical thinking.


He enjoys staying busy with his job while continuing his involvement with the American Nuclear Society (a member since 1961) and K-State.

As Mistler further reflected on his K-State engineering education, he highlighted many fond memories:

“Engineering taught me the necessity and value of hard work... and a lesson learned and experienced many times again during my career, that there is always someone smarter than you, but through your skills you can still participate effectively with that person and make your own contributions. It is important that the faculty let students know there are many opportunities for engineers in the nuclear field in both government and industry.”

Another Hall of Fame inductee was Steven Theede, a 1974 graduate in mechanical engineering. Theede’s illustrious career, now with YUKOS Oil Company, has included an array of prominent positions with Conoco...
Greetings! By the time this newsletter reaches you, the holiday season will be upon us. On behalf of MNE faculty, staff, and students, it is a great pleasure and honor for me to extend greetings of the season as well as our heartfelt gratitude for your continued interest in and support of the department. We are blessed to have outstanding students, caring staff, and a dedicated faculty. It is an awesome privilege to share some of the highlights of our accomplishments during 2004.

- We have replaced the old drafting tables in the graphics room with brand new workstations, the latest computers and audiovisual equipment, and a high-speed network system. This 48-seat modern technology classroom is now used for several of our computer application courses and is open to MNE students 24 hours per day, seven days a week.
- We have acquired a Tegrity system, which enables faculty to electronically record lectures to enhance undergraduate teaching as well as offer on-line, graduate-level courses.
- We have advertised the availability of our distance M.S. program in mechanical engineering and have begun offering graduate-level courses through the K-State Division of Continuing Education.
- Our faculty continue to do an outstanding job in teaching, research, and service areas, receiving prestigious awards and recognitions. Dr. Eckels received the K-State Presidential Award for Excellence in Undergraduate Teaching. Dr. Lease was recognized with the College of Engineering Myers-Alford Memorial Teaching Award. Dr. Shultis received the College of Engineering Robert R. and Lila L. Snell Distinguished Career Award for Excellence in Undergraduate Teaching and has been named an American Nuclear Society Fellow. Our students chose Dr. Pacey and Dr. Schinstock as the 2004 recipients of the MNE Outstanding Advisor and Outstanding Educator awards, respectively.
- Several students received prestigious scholarships including Lisa Kitten, the Clare Boothe Luce Undergraduate Scholarship; and Meredith Martin, the McNair Scholarship.
- The department’s undergraduate enrollment continues its upward trend reaching 597 in fall 2004, while extramural research funding has surpassed $5.1 million per year. We have witnessed a tremendous interest and growth in our nuclear program as well.

Undoubtedly, the MNE department is doing extremely well in all areas of teaching, research, and service. Energy, excitement, and enthusiasm abound. I encourage you to come for a visit and tour. Your generous financial support and suggestions for improvement to your alma mater are greatly appreciated.

M. H. Hosni, Ph.D.
Department Head and
Frankenhoff Chair in Engineering

Technology improvements expand student experience

Many major improvements have been made to the MNE department and its facilities in the last year, including conversion of the engineering graphics room to a new technology room. Rows of drafting tables have been replaced by 48 workstations with new computers and 17-inch LCD flat-panel monitors on swing arms. In addition to the computers, a Sun V210 gigabit ethernet switch was installed for faster server connections, a new high-speed printer added, and electrical improvements and new paint completed the room.

Another major improvement was acquisition of a 3-D, rapid prototyping machine. Best thought of as a three-dimensional printer, the Dimension by Stratasys can take a part design from a modeling program such as ProEngineer or AutoCAD, and in a matter of hours create a fully functional working model out of ABS plastic.

The newest improvement was the purchase of a PlasmaCAM CNC plasma cutter. A linear gantry machine using ProEngineer models, it uses a plasma arc to cut through any conducting material ranging from a thickness of 26-gauge to 3/4-inch. It is perfect for cutting any two-dimensional shape, especially flanges and plates.

In addition to technological improvements in the department, students upon their return from summer break were pleasantly surprised to find their shop completely renovated. Department staff cleaned, repainted, and reorganized the entire student shop. New drills, tools, and lathe equipment were purchased, as well as maintenance completed on existing machines. New safety restrictions were also put in place.

By Paul Woods
MNE senior
Hall of Fame

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Theede, who grew up near Hutchinson, Kan., always aspired to join the management ranks in the course of his career. As a K-State undergraduate, he developed his leadership skills as president of Sigma Alpha Epsilon and got his first taste of the industry in which his career would be built when he accepted an internship with Conoco the summer after his junior year.

After graduation, he began working full time with the company. In 1992, Conoco asked Theede to move to the U.K. to take over refining and marketing operations, setting him on course for an international career. He accepted the offer and continued in that position until 1998 when he returned to the United States. Two years later he was back in the U.K., this time with production and research.

When the company merged in 2002 to form ConocoPhillips, he was appointed president of exploration and production for Europe, Russia, and the Caspian. This connection to Russia led to his next career step, filling the newly created position of chief operating officer for YUKOS Oil Company in 2003.

YUKOS, based in Moscow, Russia, is one of the world’s largest non-state oil companies in terms of reserves and market capitalization and was responsible for 19.2% of all Russian oil production last year. Theede attained his current position as CEO in June of 2004.

Returning to Manhattan for the first time in approximately 13 years for the induction, Theede described his success as a result of accepting difficult challenges, advising current engineering students to work hard and be unafraid of seeking out the most difficult things—those that others will not do—and doing them, as the tougher the assignment, the greater the rewards when one achieves success.

YUKOS is currently embroiled in a tremendous fight for survival, as the Russian government accuses them of owing billions in back taxes. While Theede was not part of the company during the period under scrutiny, he accepted the CEO position a month after the government escalated its action, proof of his willingness to follow his own advice and face what may be the greatest challenge of his career: saving an oil giant on the verge of bankruptcy.

By Amanda Day Parker and Lisa Kitten
MNE seniors

Introduction to Mechanical Engineering (ME 101)

In fall 2002, as part of the mechanical and nuclear engineering department curriculum reform, a new introductory course entitled “ME 101—Introduction to Mechanical Engineering” was created. Primary objectives of this course, according to Dr. Mo Hosni, were to 1) acquaint new students with their department, 2) educate them about different areas of emphasis within MNE, 3) encourage them to interact regularly with their academic advisors, and 4) provide them with peer mentors.

Focal points of the class are to expose new students to the diverse areas of mechanical engineering, as well as advise them on many topics for a successful transition to college life. Course instructor Dr. David Pacey is the lead professor. Other professors from specialized fields are invited to the class to give lectures, for a well-rounded orientation to engineering.

One requirement of the class is a design project consisting of designing, building, testing, rebuilding, and retesting as necessary a car powered by 10 or less unmodified mousetraps and/or one eight-ounce can of Van Camp Pork & Beans. The car must carry two, eight-ounce cans, but only one can have net vertical motion.

Towards the end of the semester, a competition will be held between the 30 or so teams, the goal being for the cars to go the farthest or up to the maximum distance of 300 tiles in the atrium of the Engineering Complex. The project teaches new students engineering aspects and how to work efficiently in a team. Senior mentors work with each team.

By Bart Sommers and Melinda Au
MNE freshmen

One of 29 ME 101 design teams (l-r): Nathaniel Cole, Christopher Dawson, Andrew Ganss, Adam Keebaugh, Cristina Pedotto, and Dominic Pedotto.
After a complete team turnover in 2002, the KSU formula car team finished an inherited chassis and took it to the team’s third competition in May of 2003. In the fall of 2003, the team began building their first car from scratch, with a lofty goal of completion in one year. The fall was spent in design, fundraising, and parts acquisition, with construction beginning in February. A rolling chassis was completed in April, with the majority of the car complete in May 2004. Unfortunately, electronic woes kept the team from realizing the goal of a one-year car.

Students are currently using the opportunity of an almost-complete car to build a strong base for future teams. Officer positions were created to better organize. The team is also implementing a new design process, which requires different area team leaders presenting their designs to the entire team in both preliminary and final design stages. This process will be repeated several times during the course of this year, the result being a highly refined product for competition.

After the first iteration of redesigns taking place in the beginning of the fall 2004 semester, the car took a very promising first drive in October. The team has plans to compete in several local autocrosses to help test and tune the car for competition. Returning members and doubled membership numbers are expected to help lay the foundation for a successful program in years to come.

By Tom Pollock
MNE senior
Composite materials laboratory—research and teaching

The composite materials laboratory is a multidisciplinary research and teaching lab for teaching and research-related efforts involved with the design, basic fabrication, and analysis of composite materials. It is equipped with an automated, three-dimensional braiding machine; Instron Universal Test Machine; prepregging line; hot press; viscometer; environment chamber; RTM injector; optical microscope; high-precision cutting tools; analytical balance; and autoclave.

Professor Youqi Wang teaches Introduction to Composites, using the lab setting while covering three concepts: lectures that teach fiber science, polymerization, and composite mechanics; hands-on experience in design, fabrication, and testing of composite mechanical properties; and an overview of the commercial side of composites. Students learn about current developments within the composite field, including aerospace applications.

Current research projects in the lab specialize in molecular-level simulation of nanomaterials, such as polymer fields; nanotube reinforced polymer fields; and multifunctional materials, digital simulation of textile processes, and digital simulation of textile deformation. Work is also being done on the design, manufacture, and analysis of three-dimensional braided composites, as well as a prepregging process for high-temperature thermoplastic polymers.

Past projects dealt with the structural analysis of fiber-reinforced sandwich panels for bridge application. From 1999 to 2002, Wang led a project for the Airplane Industry Consortium, which included Boeing, Raytheon and Cessna. This research helped in development of three-dimensional braiding processes for aircraft structural components.

Aero design team explores new open class

Entering its fifth season, the K-State aero design team will change gears by moving from the regular class to the open class. Last year in the regular class, the team took first in design at the Aero East Competition and 12th overall at the Aero West Competition. However, new regulations within the regular class and the open class have prompted the switch to open class.

The basic premise of maximizing payload is the same, but a new rule has been added to open class, which limits the weight of the plane to 10 pounds. Traditionally the team has done well when building aircraft of this size, and the move to open class will allow them to more effectively utilize past experience.

Entering the open class for the first time will pose new challenges. New building techniques will need to be devised. Further research will be necessary, and new equipment will have to be purchased. Although there are many hurdles to overcome, the seven returning members and enthusiastic new teammates feel confident about the upcoming season.

Building upon the knowledge and hands-on experience of past years, the aero design team hopes to reach new heights in the upcoming season.

By Matthew Dickson
MNE junior

By Nelson Pratt
MNE senior
Dear Alumni and Corporate Friends,

Please support the Department of Mechanical and Nuclear Engineering at Kansas State University through your financial contributions and/or comments/recommendations on our curricular, research, and service activities. We are grateful for this partnership and hope you will consider supporting your alma mater.

Yes, I wish to demonstrate my support for the students, faculty, and MNE department programs with my gift of:

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I have enclosed my check in the above amount made payable to: The KSU Foundation and note on the memo line “for MNE dept. Excellence Fund.”

I authorize the K-State Foundation to collect my gift to MNE in the amount above through the credit card checked below.

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Telefund 2005 reminder

Just a quick reminder that engineering students will be calling you the week of January 23 during Telefund 2005! When you get your call, please consider letting the caller know that your gift is designated to the Department of Mechanical and Nuclear Engineering.

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