Interim department head’s welcome

It is my pleasure to wish you and yours a happy and healthy new year. The department of mechanical and nuclear engineering, or MNE, enjoyed quite a successful year in 2013.

We have some new faces in the department. In the fall, we hired two new assistant professors, Melanie Derby and Jeremy Roberts. We also added a new academic program coordinator, Heather Markson, and an assistant academic program coordinator, Mitzi Farmer. Please look for details about our new faculty and staff in articles that follow.

I am not a new faculty member but am now serving as the MNE interim department head. The College of Engineering has recently hired a new dean, Darren Dawson, and a search is in progress for a permanent MNE department head as well.

The mechanical and nuclear engineering department continues to expand. For the past 10 years, we have grown in undergraduate enrollment every year. This year we had another record enrollment of 850 undergraduate students. This growth shows that we are meeting the requirement pertinent to the University Engineering Initiative Act, or UEIA, to significantly increase engineering graduates from the three engineering schools in the state of Kansas. As the largest and most recognized engineering program in Kansas, we intend to lead the UEIA’s charge. To accommodate the growth of our college, the Engineering Complex will be adding a fourth building, Phase IV, to our existing Rathbone-Durland-Fiedler buildings, forming an integrated College of Engineering complex. Please visit engg.ksu.edu/phaseiv/ for status updates, projected timeline, and details of the expansion that kicked off in October 2013 with the groundbreaking.

Retirement is on the horizon for two valued faculty members. Daniel Swenson, professor, will retire at the end of the spring 2014 semester. Another faculty member, Sameer Madanshetty, associate professor, is on phased retirement. We are in the process of searching for a number of new members of the MNE faculty.

We are excited to present department updates, events and accomplishments in this electronic newsletter. A limited amount of paper versions are available upon request. Please contact Mitzi Farmer at mwfarmer@k-state.edu to request a printed copy. We value your connection and involvement with the MNE department and welcome a visit from you whenever you are on the Manhattan campus.

My very best regards,

Bill Dunn
dunn@k-state.edu
The American Nuclear Society has selected J. Kenneth Shultis, professor, to receive the 2013 Rockwell Lifetime Achievement Award.

He was cited for his numerous contributions over the last 50 years to the practice of shielding, shielding analyses, skyshine methodology and computer algorithms; the education of students through teaching and research; the training of professionals through short courses; the publication of textbooks and technical articles; and service to the profession.

Shultis joined the College of Engineering faculty in 1969 and is currently program director for the nuclear engineering program. His research and scholarship areas include Monte Carlo detector analysis, inverse problems, remote sensing, transport theory and radiative transfer, risk analysis, radiation protection and shielding, numerical analysis, radiological assessment and utility power analysis.

He holds both a master’s degree and a doctorate in nuclear science and engineering from the University of Michigan, as well as a bachelor’s degree in engineering physics from the University of Toronto.

By Mary Rankin

If you would like to support the department of mechanical and nuclear engineering at Kansas State University, please visit the donation page at found.ksu.edu/give/mne.
MNE welcomes new faculty and staff

Melanie Derby
Melanie Derby joined our department in fall 2013 as an assistant professor. She received her doctorate from Rensselaer Polytechnic Institute in Troy, N.Y., studying condensation heat transfer enhancement on hydrophobic/hydrophilic surfaces. Her research group, the Cooling and Heating Innovation Laboratory, or CHIL, focuses on improving condensers for power generation applications, thermal management and reducing building energy consumption.

Jeremy Roberts
Jeremy Roberts joined our department in fall 2013 as an assistant professor. He performed doctoral work at Massachusetts Institute of Technology after receiving both his Bachelor of Science and Master of Science degrees in nuclear engineering at the University of Wisconsin, Madison. His research includes the development of advanced solvers for steady-state and transient transport applications, optimization schemes for reactor loading pattern analysis, and sensitivity and uncertainty methods for criticality safety applications. He and his wife, Samantha; newborn son, Felix; and puppyish dogs, Lily and Luna, are enjoying their new lives in the Little Apple.

Heather Markson
Heather Markson joined the department in August as academic program coordinator/adviser.

Mitzi Farmer
Mitzi Farmer joined the department in December as assistant academic program coordinator/adviser.

Heather and Mitzi are responsible for advising freshman and sophomore undergraduate students, handling graduate student admissions and maintaining all MNE student records.
MNE students in the spotlight

In June 2013, the unmanned aerial systems team took third place at an event at Patuxent River, Md. The international competition featured 35 teams from the U.S., Canada, India and Turkey. The group is currently preparing for the Association Unmanned Vehicle System International's Students Unmanned Aerial System Competition in June in St. Inigoes, Md., and is in the process of building two new airframes, an antenna tracker for the wireless data link and a camera gimbal to be mounted in the aircraft. Faculty advisers for the team are Garth Thompson and Dale Schinstock, MNE.

Matt Roselli, ECE senior

In 2013, the SAE Baja team wrapped up the year by traveling to a competition in Cookeville, Tenn., where the team placed highly in several events. Highlights of the trip included scoring 15th place overall, with fourth-place finishes in both the suspension/traction and maneuverability events. The team also finished 16th in cost evaluation, 19th in acceleration and 22nd in the four-hour endurance race.

With teamwork, engineering knowledge and dedication, the team and its car, “Wildcat Off-Road,” are looking forward to another successful year of competitions April 24-27 in El Paso, Texas, and May 22-25 in Pittsburg, Kan.

More information about the team is available on Facebook at facebook.com/ksubajasae, or contact Ethan Henry, team vice president, at ethanh@k-state.edu.

Dylan Kraus, MNE senior
The SAE aero design team placed third overall and second among U.S. teams in the 2013 SAE Aero West Regular Class event in Van Nuys, Calif., with its airplane “The Spirit of Manhattan.” The competition involved 37 international teams. The team earned a total competition score of 255.61 points, a plaque and a cash award of $500 for its third-place finish. The 29.5-pound payload was a record for all previous team events. The “Spirit of Manhattan” successfully lifted its designed payload, resulting in 20 bonus points for the Kansas State University flight score. Faculty team adviser is Terry Beck, MNE professor.

The SAE formula car team members entered their car in the Formula SAE Michigan International Speedway Competition and placed 10th in the design category in May 2013. Powercat Motorsports again pushed the boundaries in this area by introducing several new design components. The team’s entry, “Leopard,” introduced a full composite monocoque chassis, a fully electric paddle shift system and wireless data acquisition.

The team races at many Sports Cars Club of America events in Salina and Wichita, Kan., throughout the year. Team members Kyle Edwards, Ben Reedy and Eric Cunningham placed first, second and third, respectively, in overall points in the Salina region Sports Cars Club of America for the 2012-2013 season. Participating in these autocross events gives both older and younger members valuable driving and racing experience. This serves as testing time of car designs and prepares team members for our two main competitions. Faculty team adviser is Kevin Wanklyn, MNE instructor.

With a focus on both reliability and communication this year, the team has set high goals to achieve and has already started on its next entry, “Jaquar.” Follow the team on Facebook at facebook.com/powercatmotorsports to get all of the latest updates.

Gavin Harvey, MNE senior
MNE faculty recognition

Weixin Zhao, postdoc, and Terry Beck, professor, both presented papers at the Joint Rail Conference 2013 in Knoxville, Tenn.

The MNE nuclear reactor had a record-setting 1,008 visitors in April 2013. These numbers included students from K-State classes, visiting students from regional colleges and universities, prospective students, local Boy Scout troops and 558 visitors during Open House. Jeff Geuther is manager of the reactor.

Mohammad Hosni, professor, received ASHRAE’s Exceptional Service Award for his contributions to the organization at its 2013 annual meeting in Denver, Colo.

Donald Fenton, professor, received the Distinguished Service Award for his longtime service work for ASHRAE at its 2013 annual meeting in Denver, Colo.

Gurpreet Singh, assistant professor, received a National Science Foundation Division of Chemical, Bioengineering, Environmental and Transport Systems grant to investigate the structure and thermal damage resistance of molecular precursor-derived ceramics for high-power laser radiometry. The three-year, $260,000-plus award is Singh’s second NSF grant as sole principal investigator in the past two years. Singh was also interviewed for a piece in the nanotechnology journal Azonano, where he spoke about the ongoing research at the K-State College of Engineering.

K-State's Engineering Summer Institute has received the University Professional and Continuing Education Association Central Region's 2013 Innovative Noncredit Program Award. The institute began in 2012 as a collaborative effort between the state of Gujarat, India, and Kansas State University. For the past two summers students from Gujarat Technical University have studied engineering at the K-State campus. Program coordinator is Mohammad Hosni, professor.

MNE student accomplishments

Romil Bhandavat, graduate student, received the Kansas State University Graduate Award for Academics. His adviser was Gurdip Singh, professor.

A team from the College of Engineering is among 10 teams selected nationally to compete in the inaugural National Collegiate Wind Competition and build a small wind turbine that can charge an electronic device such as a cellphone or electronic tablet. Faculty advisers are Ruth Douglas Miller, associate professor in electrical and computer engineering, and MNE’s Youqi Wang, professor, and Greg Spaulding, assistant professor.

John Elson, graduate student, presented the paper “Evaluation of Personal Cooling Systems for Military Use” at the International Conference on Environmental Ergonomics in Queenstown, New Zealand, Feb. 11-15. Co-authors are Steve Eckels, MNE professor, and Elizabeth McCullough, professor emeritus of textiles.

Graduate students John Elson, Jason Schlup and Will Asher attended the ASHRAE 2013 National Conference to report on an Institute of Environmental Research project looking at optimization of chiller design for large industrial systems.
Where are our MNEs?

We would like to hear from you. Email Mitzi Farmer at mwfarmer@k-state.edu with information about your career, family or other postgraduation updates. When you send news be sure to include your name, graduation year, a photo if available, and your location.