

KSU Undergraduates Evaluate Performance Of Their Instructors

Engineering faculty at Kansas State University are finding out what their students really think of them.

This is now possible because of a student evaluation of faculty classroom performance conducted each semester by K-State undergraduate engineering students.

"The evaluation elicits free response. It gives them a chance to say what they honestly think," says Dr. Paul L. Miller Jr., chairman of an instructor evaluation committee. This committee is made up of nine faculty and four students.

"Most students would hesitate to walk into a prof's office and say the same things they can say anonymously on our evaluation forms.

Improve Work

"Students generally don't know their profs well enough to know how each one reacts to criticism," Dr. Miller said.

KSU engineering students aren't rating their instructors just for the sake of rating them. The ratings, made each of the past four semesters, are primarily to help each instructor improve his classroom work.

"All of us have room for improvement," Dr. Miller said.

During spring semester, 981 undergraduate student engineers evaluated 129 classes taught by 86 different engineering faculty members.

Students rated their instructors for preparation and organization, personal involvement with students' work, clarity of communication, stimulation, speaking style used in lectures and personality.

Sees Comments

After all evaluation forms were tabulated, each faculty member was given a summary evaluation for each class he taught. Each also received each evaluation form filled out so he could see student comments—objective and subjective.

Not all K-State engineering instructors think the student evaluation is valuable. At least one believes that his students are not capable of grading him.

"Perhaps in five years, after they're out of school and have achieved some larger degree of maturity and professional development, they will be qualified to evaluate me," that professor said.



THE KSU ENGINEERING ADVISORY COUNCIL met May 23 on campus to discuss the present status and future plans for the College. Council members attending (standing, l. to r.) Adm. Eugene J. Peltier, St. Louis; T. F. Skinner, St. Louis; KSU President James A. McCain; Donald Christy, Scott City; Ross Beach, Hays; and Dr. Roy Bainer, Davis, Calif. (Seated, l. to r.) Dr. Ralph G. Nevins, KSU engineering dean; R. W. Decker, Saginaw, Mich.; H. V. Rathbun, Great Bend; Ed King, Olathe; and Daric M. Miller, Topeka. Not present for the picture were M. A. Durland, Manhattan; Dr. Fred J. Benson, College Station, Tex.; Dr. R. G. Taecker, Argonne, Ill.; and C. C. Tate, Bartlesville, Okla.

Dwight A. Nesmith Succeeds Leland Hobson as EES Director

A native Kansan who has been on the engineering faculty at Kansas State University for nearly 21 years has been named director of the K-State Engineering Experiment Station (EES) effective July 1, 1969.

Dwight A. Nesmith, professor of mechanical engineering and assistant director since 1961, succeeds Prof. Leland S. Hobson who retired July 1, 1968.

Announcement of Nesmith's promotion came from Dr. Ralph G. Nevins, K-State engineering dean.



D. A. Nesmith

Nesmith has served as acting director of EES since Hobson's retirement. Hobson continues to serve on K-State's mechanical engineering faculty.

Since Nesmith became associated with the EES research program in 1961, the budget for research in engineering has grown from \$250,000 with less than \$75,000 from outside sources to more than \$1 million, of

which more than \$750,000 comes from non-state sources.

A native of Kechi, Nesmith attended public schools in the suburbs of Chicago, and studied accounting at Morgan Park Junior College and DePaul University in Chicago before World War II.

After receiving his discharge from the Army Air Force, Nesmith entered the Technological Institute of Northwestern University, Evanston, Ill., and received his B.S. degree in mechanical engineering in 1948. He was appointed to the staff at Kansas State University as an instructor in mechanical engineering in 1948 and received a master of science degree in mechanical engineering in 1952 at K-State.



A NEW \$42,000 MATERIALS TESTING MACHINE has been bought by the department of applied mechanics at no cost to the state. It replaces an older machine shown on another page of this issue of IMPACT. The MTS was paid for, using funds earned through testing services and research contracts. It is being used primarily for instruction and research, said Dr. Philip G. Kirmser, professor and department head. Operating it (l. to r.) are Dr. Everett E. Haft, Dr. Frank J. McCormick, faculty members, and Edward Figeula, graduate research assistant.

College Establishes New Center To Enrich Engineering Teaching

The College of Engineering at Kansas State University has opened a Center for Effective Teaching.

This instructional enrichment program is to be partially funded by a gift from an anonymous K-State engineering alumnus. Director of the center is Dr. Paul L. Miller Jr., chairman of the college's faculty-student advisory committee for effective teaching.

In announcing the center's opening, Dr. Ralph G. Nevins, KSU engineering dean, pointed out that "excellence in teaching is a primary goal of our college. A faculty member's effectiveness as a teacher is a very important factor in tenure, promotion and salary increases.

"This new center will help focus our continued efforts and provide a mechanism for organization and initiation of programs to meet this goal."

The center will coordinate several programs including specialized training for young engineering educators, seminars in educational methods and techniques for all engineering faculty, student evaluation of undergraduate teaching, and several monetary awards for excellence in teaching.

Dr. Miller explained that nominations for teaching awards will be submitted by engineering faculty and students. Amounts and number of awards are yet to be determined.

K-State's Engineering Council, representing more than 1,200 students, is represented on the advisory committee of the center.

These students have assisted in the evaluation of undergraduate faculty instruction the past two years.

The specialized program for young educators is to include a series of seminars and discussions with invited lecturers on topics such as teaching methods, psychology of teaching and learning, testing and grading procedures, and balance between teaching and research for individual faculty members.

The center, result of two years of study and planning, will also use its funds to sponsor innovative techniques in classroom instruction. Miller said it is hoped that this will encourage the faculty to try out the newest techniques and methods in regular classes.

Reference materials and current periodicals on teaching media and methods will be maintained. There will be active coordination and participation with the educational research and methods division of the American Society for Engineering Education (ASEE).

Nuclear Engg. Dept. Accepts Membership In AIF Organization

Kansas State University has accepted a three-year membership grant in the worldwide Atomic Industrial Forum (AIF).

K-State is one of only a few "select" universities to be so honored, KSU President James A. McCain said in announcing the acceptance.

AIF is a forum, information bureau and technical clearing house, as well as a national association for industries, institutions and agencies.

A non-profit, scientific-educational organization established in 1953, AIF was founded to promote the early and sound development of peacetime uses of atomic energy.

Dr. McCain has named Dr. Curtis G. Chezem, professor and head of the department of nuclear engineering, to represent K-State in AIF affairs. Dr. Richard E. Faw, professor and director of the university's Radiation Shielding Test Site, is alternate representative.

KSU now has equal voice in AIF activities with such nuclear industry giants as General Electric, Westinghouse, Babcock and Wilcox, Nuclear Fuel Services and United Nuclear.

AIF has nearly 500 organization members in 20 countries, including such mid-west firms and utilities as Black and Veatch, Kerr-McGee, Arkansas Power and Light, Boeing, Getty Oil, Missouri Edison, and Martin K. Eby Construction Company.

Engineering Society Honors K-State Research Institute

An interdisciplinary research group organized only six years ago at Kansas State University has been honored for its achievements by the Kansas Engineering Society.

K-State's Institute for Environmental Research was lauded by KES for its contributions to and achievements in engineering in Kansas during 1969, announced Paul Newcomer of Topeka, KES executive manager.

Leaders of the institute have also been granted special service awards by the Kansas City chapter, American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE).

KES presented its 1969 award to the K-State institute during the society's annual meeting at Salina, Kan., on June 13. It was presented by KES president J. Martin Hall of Wilson and Company, Salina.

"The institute has distinguished itself as a prime research center for studying the effects of exposure to normal and altered environments on human comfort as well as physiological and psychological responses," Newcomer said.

This research group, founded in November 1963, currently conducts research projects totalling in excess of \$400,000 annually.



SCOTT H. HUNTER retired on February 28 as a road materials inspector for the department of applied mechanics after 45 years of service. Hunter inspected this concrete sample for a Kansas contractor on his last day of work. This materials testing machine is being replaced by a new \$42,000 MTS shown elsewhere in this issue of IMPACT.

First of its Kind . . .

Cooling Symposium Gets Results

The world's leading researchers of problems dealing with individual cooling took part in a symposium at Kansas State University March 17-18. They updated each other on their activities.

Investigators from Australia, England, France as well as the United States presented or had papers read for them during the symposium. It was billed as the first of its kind in the U.S.

Dr. Stephan A. Konz, professor of industrial engineering and coordinator of the symposium, reported that registration for the meeting was between 40 and 50.

For R. C. London, a research engineer in England's Royal Aircraft Establishment, March 17 or St. Patrick's Day was a red letter day. His speech to the symposium was the first of his career.

His technical paper was entitled, "A Review of the Work in the United Kingdom on Water Cooled Suits."

London, one of two scientists in the United Kingdom doing research in this field, said, "this is indeed a red letter day for me or is it more appropriate to say green."

"This is the first speech I have given on any subject. I have been in research for 30 years," he said.

London has found that it is not economical to cool military aircraft by cooling the plane as is done in commercial aircraft. His work involves attempts to cool individual crewmen by using water cooled suits.

Water cooled suits have two advantages over air cooling a cockpit. First, the suit is a closed circuit and therefore the power required to pump water through a suit is far less than is required to pump a larger mass of air through the cockpit.

London said that elimination of the equipment required to circulate cool air through the plane leads to a lighter and more efficient plane.

Dr. Paul Webb, an M.D. from Yellow Springs, Ohio, told scholars at the symposium what his engineering consulting firm is doing to improve upon current methods of keeping U.S. astronauts comfortable.

The first automatic control device developed by Webb keeps a man in a space-suit comfortable by measuring the astronaut's oxygen consumption rate.

"When you measure that rate, then you know how much work he is doing and how much heat he's producing. This measurement sends a signal to our control—we call it a black box—and this regulates a device which cools the astronaut automatically," he said.

The second control developed by Webb Associates measures the astronaut's cooling rate continually by heat extraction.

Dr. Konz, who has been working local cooling hoods, was happy with the results of the symposium. Dr. Webb thought it a well conceived meeting.

Several other leading U.S. researchers from universities and industry, including Dr. Konz, presented papers on their work.

L. A. Schmid Will Use New Removal Process On Sewage Problem

The flood of detergents into our lakes and streams could in the next decade or two "choke many of our waterways to death."

So says Dr. Lawrence A. Schmid, civil engineering faculty member at Kansas State University. He's studying a method he hopes will check this problem before it becomes more critical.

Detergents from baths and washing clothes and dishes, he said, are now fed into sewers at an alarming rate proportionately greater than the population growth.

Phosphates in these cleaning agents, Dr. Schmid explains, serve as a nutrient for algae which in recent years have multiplied so fast they're "literally choking our lakes." Most modern detergents contain up to 50 per cent phosphate.

Depletes Source

This excessive detergent flow causes two problems: It creates an overabundance of organic material, primarily algae, in the water. When this material dies, it depletes the source of oxygen for fish and aquatic life.

While working on his Ph.D. in sanitary engineering at the University of Kansas, Dr. Schmid developed a process for removing this nutrient.

Although it's too early to tell, this removal technique seems to be "very economical and quite feasible," based on Schmid's laboratory work.

Dr. Schmid, a K-State assistant professor, indicates that this "lime-biological treatment phosphorous removal process" hasn't been used on a full scale yet.

Evaluate Technique

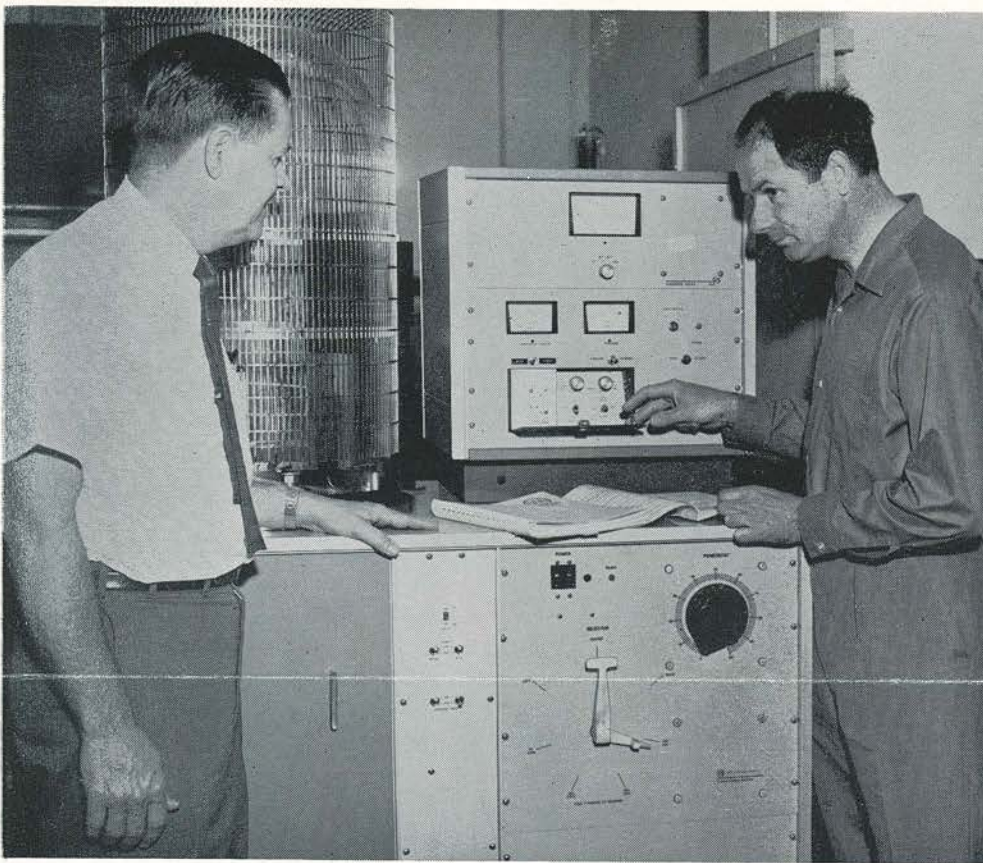
He has been awarded a two-year, \$41,550 research contract by the Federal Water Pollution Control Administration, to set up a pilot plant to evaluate his removal process. The project began June 2.

The pilot plant will be set up during the next few months and is expected to handle about 20,000 gallons of sewage a day. This research will be conducted at the Manhattan Sewage Treatment Plant.

Smith and Loveless, Lenexa, a manufacturing firm, is providing at cost the basic treatment units for Schmid's pilot plant.

About Oct. 1, Dr. Schmid plans to launch 20 months of research to evaluate his technique. He will concentrate on two things—determining operating procedures, and seeing if his removal process is economically feasible on a full-scale basis in sewage treatment plants in the U.S.

By Schmid's process, the majority of phosphates in raw sewage are solidified by lime and then settled. This is followed by a biological process in which growth of bacteria removes the remaining phosphates, he explained.



K-STATE GETS TEACHING-RESEARCH EQUIPMENT—Dr. Michael S. P. Lucas (r.) director of the new KSU Solid State and Thin Film Technology Laboratory, and Dr. W. W. Koepsel, professor and head of electrical engineering, check over a new \$9,000 automatic vacuum system. It was donated to the K-State department of electrical engineering by Varian Associates, Palo Alto, Calif. This model VE-60 six-inch system is being used for teaching and research with integrated circuits.

Lucas to Offer Practical Course In Building Integrated Circuits

By Nariman N. Karanjia

Kansas State University will be the first in Kansas to offer a course in the manufacture of integrated circuits.

The course, to be taught starting this fall, will involve two hours of classwork and three hours on the Solid State Engineering laboratory.

Integrated circuits are used in farm machinery, automobile ignition systems and children's toys, as well as in missiles and spacecraft.

Microscopic in size, they are less expensive and more reliable than conventional circuits. They extend man's senses to enable him to better control his environment.

The laboratory was established at K-State during the 1968-69 academic year by Dr. Michael S. P. Lucas, associate professor of electrical engineering, who has done similar work at the University of Edinburgh, Scotland.

"Just as the transistor replaced the vacuum tube, integrated circuits," Dr. Lucas said, "are fast replacing conventional circuits."

In dollar volume, the integrated circuit industry is close to \$500 million a year. The laboratory at KSU is expected to help attract some industry to Kansas.

Many industrial firms have expressed interest in the laboratory. Varian Associates, Palo Alto, Calif., has presented a \$9,000

vacuum machine. Western Electric Company has donated several pieces of equipment.

"Since there is a lack of trained personnel in the integrated circuits field, the laboratory should increase the market value of the K-State electrical engineering graduate. Many firms have expressed interest in students who have graduated and have taken such a course," Dr. Lucas said.

Students in the class will go through the steps involved in the manufacture of integrated circuits. "It is definitely a practical course," Lucas pointed out. "Students will build their own circuits."

This course has been added to the K-State electrical engineering course offerings because in the near future, Lucas said, those electrical engineering departments that do not expose their students to integrated circuit design and technology will be looked upon as offering obsolete curricula and granting inferior degrees.

Dr. Walter Carleton, Agricultural Engineer, Granted DSA Honor

An agricultural engineer who has achieved eminence in government and education was presented a Distinguished Service Award in engineering by Kansas State University during the Engineers' Open House on March 15.

Dr. Walter M. Carleton, Washington, D.C., director of the Agricultural Engineering Research Division of the U.S. Department of Agriculture, is the 1969 recipient of the coveted award.

Presentation of the DSA was part of several activities of the Open House which attracted 7,000 persons to the K-State campus. Miss Judy Macy, daughter of journalism faculty member Elbert Macy, was chosen St. Patricia.

Some 30-35 K-State engineering graduates took part in the first annual Alumni Symposium sponsored by the College of Engineering during the Open House March 14-15.

Dr. Carleton, a 1938 graduate, is a former agricultural engineering instructor and extension agricultural engineer at Kansas State.

After completing his high school education, he studied agricultural engineering at K-State. Carleton, a native of Coldwater, Kan., then worked for the Kansas Power and Light Company as a rural service engineer.

K-State Engineer Magazine

Subscriptions to the K-State Engineer, quarterly student engineers' magazine published at Kansas State University, are now available to IMPACT readers.

The colorful 20-page publication costs \$2 for a one-year subscription, \$4 for two years, or \$5 for three years. Each issue contains a timely news section, student articles, pictorial features on pretty coed Engin-Dears, and a regular column by Dr. Ralph G. Nevins, "Notes from the Dean."

Checks for subscriptions should be made payable to K-State Engineer. Mail your subscription order to: K-State Engineer, Seaton Hall, Kansas State University, Manhattan, Kansas 66502.

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