

On Energy Matters . . .

## K-S Engineers Assist State

Fall semester the K-State College of Engineering became more actively involved in researching and assisting in the solving of energy problems in Kansas.

Dean Donald E. Rathbone announced on Nov. 29 he was pledging the technical expertise of K-State engineering educators and researchers to help Kansas meet the energy crisis.

Dr. William H. Honstead, director of the Kansas Industrial Extension Service, was designated to coordinate this assistance.

Honstead said K-State engineers have particular expertise in such areas as how to make rooms and buildings more comfortable, design of heating and air conditioning systems, engine performance, systems analysis of fleet operations, power generation, and alternate sources of energy.

Rathbone pointed out that unusual technical expertise is available through the engineering college's Center for Energy Studies, Institute for Environmental Research, and Institute for Systems Design and Optimization.

Under energy assistance program of the College, faculty are conducting half-day and full-day conferences and are available for talks on energy conservation.

The K-State Engineering Center for Energy Studies is headed by Dr. N. Dean Eckhoff, associate professor of nuclear engineering and director of the C. C. Tate Neutron Activation Analysis Laboratory.

Some goals of the energy center were explained by Dean Rathbone:

"We are conducting interdisciplinary research and training programs designed to meet the specific needs of the State of Kansas, the midwest, and the nation. These activities involve the planning, design, and operation of energy production processes, power generation, transportation and utilization of energy and power, and the management of energy resources.

In addition to providing a vehicle for coordinating our research in the energy and power fields, the Center gives emphasis to this area which the College of Engineering judges to be a crucial concern for the immediate future."

On Dec. 14 the Center for Energy Studies hosted some 175 energy experts at Energy Symposium II, "Toward a Kansas Energy Policy." Eckhoff was coordinator of the symposium.

He said the symposium benefitted the State of Kansas in at least two ways: 1) providing a Kansas energy information exchange, and 2) serving as a beginning for gathering needed data on energy supply and demand in Kansas.

The keynote speaker was William W. Wetmore of the National Science Foundation, Washington, D.C.

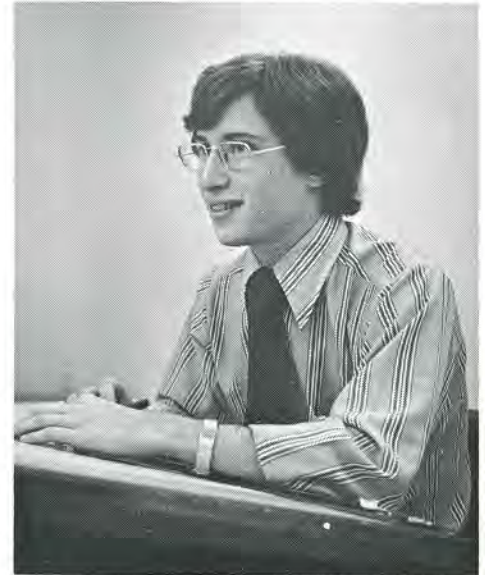
Besides Dean Rathbone, Dr. Robert Robel, Dr. Floyd W. Smith, and Dr. Tom Swearingen, all of the KSU faculty, eight other Kansans and an Oklahoman presented valuable information.

Ted Brooks, Elmer S. Hall, E. B. Krider, State Sen. Vincent E. Moore, all of Wichita; Dr. William W. Hambleton, Lawrence; R. L. Matheson and James K. Poage, Kansas City; Daric Miller, Topeka; and Ray Steiner, Bartlesville, Okla.

More than a year ago the College of Engineering took steps to provide more trained manpower in areas like power generation and distribution by initiating these options for K-State engineering studies. This activity is being coordinated by Dr. Floyd W. Harris, associate professor of electrical engineering.

### 50th Annual KSU Open House Set for March 29-30 at K-State

The 50th annual K-State Engineering Open House is set for Friday and Saturday, March 29-30, reports Dr. John E. Kipp, faculty adviser to Steel Ring. This organization of senior men and women annually conducts K-State exposition of student displays, exhibits, and various presentations of interest to the general public. Make plans early to come to Manhattan for this popular event. Several thousand persons are expected to attend.



**COOPING IN KANSAS CITY** — Bob Hofman, Green, Kan., junior in mechanical engineering at K-State, worked at Black & Veatch Consulting Engineers, Kansas City, Mo., this past fall semester under K-State's Cooperative Work Study Program initiated 10 years ago. KSU engineering students, male and female, in the program earn money for educational expenses while getting valuable engineering experience which tends to help them in the classroom.

### Co-op Program Benefits Students, Industry, Gov't.

The K-State Engineering Cooperative Work Study Program is now 10 years old. It's a combined effort between KSU, private industry, and governmental agencies.

Students who enter the full five-year program work three semesters and two summers and attend school between work sessions.

Dr. Kenneth K. Gowdy, director of the program, says the job experience gives students, male and female, valuable insights into engineering careers. Participants are selected from among freshmen and sophomores who have good academic records.

"There has been a favorable reaction to the on-the-job training program by all who have participated. Students show more motivation in class and earn higher grades after working.

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## Prof. Arthur Flinner Of Mechanical Engg. Retires from Faculty

Arthur O. Flinner, a professor in the KSU department of mechanical engineering since 1929, retired from the engineering faculty Sept. 10.

"Professor Flinner was respected by his students for his high standards and insistence that they be thorough in their work. Professor Flinner taught courses and was an authority in thermodynamics and air conditioning," said Dr. J. Garth Thompson, professor and head of mechanical engineering at K-State.

In 1929, K-State appointed Flinner to the engineering faculty as an instructor. He was promoted to assistant professor in 1934, to associate professor in 1939, and to professor in 1947.

Flinner's association with K-State began as a student. He received B.S. and M.S. degrees in mechanical engineering from K-State in 1929 and 1934. In addition, Flinner earned an M.S. in mechanical engineering from Massachusetts Institute of Technology in 1937.

In 1958 Flinner was one of two investigators at K-State's Engineering Experiment Station receiving a research grant from the National Institutes of Health to investigate the comfort effects of heating and cooling on individuals.

## KSU Researcher Says Sunglasses Hurt Vision

Contrary to what many people believe, sunglasses are more of a detriment to vision than an aid, a study by a K-State engineering educator has revealed.

Dr. Corwin A. Bennett, professor of industrial engineering, and Ramesh K. Mehan, a graduate student, said many people think an obvious reason to wear sunglasses is to improve vision and to reduce discomfort caused by glare.

However, visual acuity, the ability to see detail, is reduced by sunglasses because the amount of light in the field of vision is reduced. The darker the glasses the poorer the acuity, Bennett explained.

Only polaroid sunglasses worn in a reflected glare condition improve visual acuity. Poor acuities result in no-glare conditions when polarized or non-polarized sunglasses are worn. Poor acuities also occur in reflected glare conditions when non-polarized sunglasses are worn, Bennett said.

The findings were the result of two experiments conducted by Bennett and Mehan.

In the first experiment subjects were exposed to glare and no-glare light conditions. In each case subjects were tested with and without sunglasses.

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ENGINEERING STUDENT COUNCIL President Mike Ramsey, senior in agricultural engineering, Garden City, Kan., was the runner-up in the annual John G. Sutton Award competition which honors the outstanding third-year student in agricultural engineering in the U.S. for 1972-1973. Ramsey confers often with Dean Donald E. Rathbone on student engineering activities at K-State. Council members have been working hard promoting the College around the state this year.

## Potpourri Column Initiated

Potpourri  
by Donald E. Rathbone

The first semester for 1973-74 is rapidly coming to a close and should be past history when you receive this copy of "Impact." I thought perhaps you would like the views of a new member of the faculty, namely yours truly.

The first thing that struck me about KSU engineering was the dedication of the College faculty to engineering education. Sometimes, in fact, it almost seemed to be overdone. Engineering in general and engineering at KSU in particular have been fighting decreasing enrollments for a number of years now. The faculty, however, refuses to close down any particular courses that have even a minimum level of respectability relative to enrollment or to take any short cuts that would lower the quality of our program. If a course is deemed necessary, the College has attempted to teach it. This doesn't do our College "statistics" any good, but it hopefully helps the student. Fortunately, this situation may change in the next few years, and the faculty be vindicated. Our freshman enrollment is up this year from last so our total enrollment may be bottoming out.

The present demand for engineering graduates is truly excellent and generally considered the best of all the disciplines. The future prognostications for engineering employment are also very good so we are optimistic.

Perhaps the second thing that caught my attention was Seaton Hall itself. It is a "great old building" and has served engineering and architecture well. With the construction of the new Chemical and Industrial Engineering building to start this

spring (hopefully), it was thought appropriate to consider some renovations and remodeling in Seaton Hall. We are developing a two-year plan, and the facilities committee is quite enthusiastic about our goals. If we can only implement them now.

I was told that I am to limit my remarks to 150 words so perhaps I should close for now. However, I would like to comment on the enthusiasm which I have observed by the alumni of KSU for the University and the College of Engineering. The University and College have apparently been doing something right. Establishing this relationship is something that I personally feel is as important as anything we do. You can be assured that we will continue to try to be effective here also. More later.

## Sigma Tau, Tau Beta Pi Merge at K-State on Jan. 27

Tau Beta Pi, a national student engineering honor society, established a chapter this fall in the K-State College of Engineering. Dr. Frank A. Tillman, professor and head of industrial engineering, is faculty adviser.

In November, the K-State student chapter of Sigma Tau engineering honorary voted to merge with Tau Beta Pi. The merger will take place at K-State on Jan. 27.

## Black & Veatch Professorship in NE Dr. John Mingle

A KSU professor whose association with K-State dates back to the early 1950's has been designated as the KSU Black & Veatch Professor of Nuclear Engineering.

"We are pleased to announce the designation of Dr. J. O. Mingle to this professorship in the department of nuclear engineering," said Dr. Donald E. Rathbone, dean of engineering.



Dr. J. O.  
Mingle

Sponsors of the professorship, Black & Veatch Consulting Engineers of Kansas City, Mo., have operations throughout the U.S. and abroad. The firm has had a long association with the K-State department of nuclear engineering.

For the past four years, A. E. Swanson and E. O. Smith of the Black & Veatch Nuclear Division have been adjunct professors of nuclear engineering at KSU.

Under the professorship, Mingle is teaching and carrying out research in the areas of nuclear power plant design and nuclear fuel management.

In addition to his professorship, Mingle is director of the K-State Institute for Computational Research in Engineering. He is president of the Tri-Valley Chapter of the Kansas Engineering Society and was recognized last spring for outstanding achievement by the KSU graduate faculty.

Mingle is a registered professional engineer in Kansas.

## Experimental Results Indicate Sunglasses Detriment to Vision

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Subjects in the second experiment judged the intensity of a glaring light source under the four viewing conditions. Initially, each subject adjusted the light source to the "borderline between comfort and discomfort." This adjustment served as a reference. Then subjects were exposed to one of six luminances and asked to judge how much more or less glaring this condition was than the reference.

Bennett presented the research findings on sunglasses Oct. 17 to the Human Factors Society meeting in Washington, D. C.

"A lot more research directed at consumer products is needed," Bennett said. "Manufacturers frequently don't know how to make their products better for consumers. They need more information through research."



**ASPHALT VISCOMETER DEVELOPED** — Dr. Mohammed Abdel-Moneim, a new K-State engineering faculty member, developed an innovative new device — an asphalt viscometer — for measuring viscosity, or resistance to flow, of liquid petroleum products. The viscometer was developed as part of his Ph.D. dissertation under guidance of Dr. Philip G. Kirmser, professor and head of applied mechanics at KSU. The device measures coefficient of viscosity of asphalt at various temperatures, and may be also used for other highly viscous fluids.

## Course Taught on Complexities Of Environmental Technology

Helping the non-science student view the complexities of the total environmental picture is the goal of an innovative K-State course offered for the second time this spring. It will be taught Thursday evenings starting Jan. 17.

"Introduction to Environmental Technology" was developed by Dr. Larry Erickson, professor of chemical engineering, and Dr. N. Dean Eckhoff, associate professor of nuclear engineering. It is believed to be one of the few such courses offered in the nation.

Designed for non-engineering students, topics like the laws of thermodynamics, energy conversion, and techniques for controlling air and water pollution are presented in simple terms.

According to Erickson, the course is needed because it's the man-on-the-street as well as the technologists who will shape the future answers to crucial environmental questions.

"It's the citizenry, through their elected representatives or votes on referendums who will be the strong decision-making force," he explained. "The average person plays an increasingly important role in the environmental picture."

Before intelligent choices can be made, an understanding of the intricate relationship between the activities of society, industry, and the environment is necessary.

"We try to give more than just facts," Erickson said. "We try to paint the relationships so the student may obtain a balanced, total view."

He emphasized that the intent of the course is not to provide a forum for

vigorous debates of the issues. Rather, the instructors "point out the alternatives that could be considered and their respective advantages and disadvantages."

Pinpointing the quandary, Erickson said: "For instance, nobody would want to live by a petroleum refinery. But everyone likes to turn on the switch and have the power it provides."

## Work-Study Program Benefits Students, Industry, Govt.

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"They're not wasting their time. They're obtaining valuable professional experience. Many of these students are employed by the same company after graduation," Gowdy explained.

In the past 12 months three coed engineers at K-State have worked under the program: Marla Kalivoda Jorgenson, Concordia, Kan., worked at Black & Veatch, Kansas City, Mo. and Susan Avalone, Bronxville, N.Y., and Dorothy DeMuth, Wright, Kan., at Caterpillar Tractor Company, Peoria, Ill.

Several students in the K-State coop program will be going on work assignments spring semester, some on their first assignments and others on return work semesters.

## NEWSWORTHY NOTES

Dr. Cecil H. Best, associate dean of engineering at K-State since 1967, has resigned that position effective Jan. 1, 1974, to return to full-time teaching and research. His successor will be announced shortly.

The Regional Technical Support Center of the U.S. Civil Preparedness Agency at KSU is expanding its shelter development services from Kansas and Nebraska to include Iowa and Missouri.

A \$1,000 scholarship from the National Society of Professional Engineers to Carl R. Anderson, Muscotah, Kan., is helping turn his aspirations of becoming a research engineer into reality.

A K-State industrial engineer, Dr. Stephan Konz, says if you have a printed message for a poster or sign — use blue for attractiveness, and blue, black, or green for legibility. Avoid yellow, orange and light black like the plague. These were the findings of a recent experiment Konz conducted.

Doug Fowler, Centralia, Kan., KSU's Western Electric scholar for 1973-1974, became interested in electrical systems by helping his father, a building contractor, wire houses. Fowler is a sophomore in electrical engineering.

On Sunday afternoon, Oct. 14, the 30-member pledge class of Sigma Tau honor society gave the K-Hill landmark in Manhattan its annual whitewashing. It took 30 bags of white Portland cement, 30 bags of lime, added to about 400 gallons of water.

A \$200 check from Dowell Division, Dow Chemical Company, Tulsa, Okla., has been received by the KSU department of mechanical engineering.

Dr. James E. Woods is on the K-State faculty this year as an instructor in mechanical engineering and a research associate in the KSU Engineering Experiment Station.

Dr. Wellington W. Koepsel, professor and head of electrical engineering at K-State, gave a seminar on "Thyristor Control of D.C. Motors" Aug. 8 in Pueblo, Mexico, at the National Institute of Astrophysics, Optics, and Electronics.

Dr. James K. Koelliker, Ph.D. from Iowa State University, is a new assistant professor of agricultural engineering at K-State this year. He teaches soil and water engineering and conducts water resources research.

Dr. Do-Sup Chung, associate professor of agricultural engineering, is 1973-1974 president of the Kansas section, American Society of Agricultural Engineers.



**SATELLITE MAY DETECT WHEAT DISEASE** — Dr. Donald Lenhart, associate professor of electrical engineering at K-State, is trying to detect areas of wheat disease by using an Earth Resources Technology Satellite photograph and a computer gray scale map. Each character on the map represents one acre of the Manhattan-Junction City area photograph. Lenhart, working in conjunction with NASA and the University of Kansas, will try to determine if the satellite photograph is a reliable detector of wheat disease.

## Grads Get More Job Offers, Coeds Start at \$936/Month

The approximately 200 K-State engineering seniors graduating this year face improving job prospects.

"The demand for engineers is increasing steadily," reports Dr. J. Bruce Laughlin, director of KSU's Career Planning and Placement Center.

Dr. Kenneth K. Gowdy, assistant dean of engineering at KSU, notes that there not only was a significant increase in the number of firms interviewing on campus last year (300), but also that there was a substantial increase in number of job offers.

"We placed every student who graduated, and on the average each student had three job offers to choose from. This compares with about two job offers a student the previous year. Nationally, job offers for engineering graduates nearly doubled this past year," Gowdy adds.

The number of engineering women graduates is increasing at KSU and Laughlin terms their prospects "excellent."

"Opportunities for women in engineering are limited only by geographic locations which the students, themselves, impose," Laughlin says. "National salary offers for women last year averaged \$936 a month, which was \$6 a month higher than the men's average."

Kansas State University has eight women who expect to graduate this year with engineering degrees.

"That's four percent of the KSU engineering graduating class — well above

the national average, which is just one per cent," Gowdy says.

Kansas State University's new engineering dean, Dr. Donald E. Rathbone, doesn't know why more women haven't gone into engineering.

"Few engineering activities require much physical work outside," he notes. "Most engineers use pencil, paper, and a computer or a laboratory."

He also points out that more than half of all engineering graduates eventually go into managerial positions, and he feels women are just as capable in this area as men.

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Dean of the College  
Dr. Donald E. Rathbone

Director  
Engineering Experiment Station  
Prof. D. A. Nesmith

IMPACT Editor  
Tom Gerdis