KANSAS STATE
ENGINEERING IMPACT
NEWSLETTER

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K-STATE INSTITUTE for Environmental Research personnel, under the recently renewed $200,000 Department of Defense THEMIS contract for study of altered environments, have found that a water-cooled hood appears to be effective in reducing physiological strain during exposure to high temperature.

To KSU By D.O.D.

2nd Themis Awarded

Kansas State University has been granted its second major research contract through the U. S. Department of Defense THEMIS program. The first contract has also been renewed.

The new THEMIS contract provides for $577,000 in support for a three-year interdisciplinary study in nuclear engineering and solid-state physics.

Upon satisfactory progress, the grant is renewable annually at $288,500 a year. It is funded by the Department of Defense and administered through the Office of Naval Research.

The THEMIS renewal is for almost $200,000. It has been awarded to K-State's Institute for Environmental Research.

Purpose of the research is to provide DOD with basic data applicable to support and performance of men confined in environments such as submarines, space stations, spacecraft, missile launch centers and other confined areas.

The $577,000 contract, titled "A Cohesive Study of Electronic Materials and Components in Nuclear-Radiation Environments," will include study of basic phenomena relevant for understanding radiation-induced damage.

Military Hardware Use

The project is expected to have application in improving hardness of military electronic hardware, and non-military use in the nuclear-power industry and space program, according to Dr. Hermann J. Donnert, associate professor of nuclear engineering at K-State, and program manager.

This year several hundred proposals for THEMIS contracts were submitted by U. S. academic institutions. After a first screening, 100 applicants were invited to prepare detailed proposals for further evaluation. Of these, only 40, of which K-State was one, were selected to receive support.

Under the $200,000 THEMIS contract, KSU engineers and scientists are considering many variables and factors—temperature, noise, lighting, clothing, bacteria, dust, size, shape, color and vibration. This work, begun in September, 1967, is being led by Dr. Ralph G. Nevins, Institute director and dean of the College of Engineering.

In their studies of confined environments, Institute researchers have found that a water-cooled hood appears to be effective in reducing physiological strain during exposure to high temperature.

Motor Performance Facilitated

Among other findings from this project, a Ph.D. dissertation in psychology showed that perceptual motor performance is facilitated following brief exposures to high thermal stress, but is unaffected when the exposure time is lengthened.

Dr. Nevins said that a "versatile electronic tracking apparatus" was developed "for measuring human performance in perception and judgment, response organization as well as attention and information processing."

Research Grants Top $2 Million First Time

The College of Engineering, through its experiment station, received 28 grants and contracts totaling more than $2 million in non-state support for research and graduate study in 1967-68.

The record total is nearly three times as great a dollar volume as in 1966-67 and four times larger than the corresponding 1962-63 amount.

In numbers of grants, the 1967-68 record was slightly less than the five-year average of 29 grants a year because most newer projects received have been broader in scope, had larger budgets, and included more than one university department.

Many grants and contracts received by the Engineering Experiment Station extend through 1970 and 1971.

This funding level assures attainment of a outside support goal, established by the College four years ago, at $1 million a year for the next few years.

State funding of research at K-State this year will be about 20 per cent of the total.

Student Engineers To Host 45th Open House in March

Student engineers at K-State have selected March 14-15 as the dates for their 45th annual Engineers' Open House.

The open house will be from 6 to 10:30 p.m. on Friday, March 14, and from 9 a.m. to 5 p.m. Saturday.

Highlight of the open house will be many new and unusual student-developed and -created displays depicting the "truly fascinating world of engineering in 1969," with a glimpse into the future.

Among key features will be Robby, the walking-talking robot, the 'Copper Man,' crowning of the engineers' patron saint, St. Pat, and his lady, St. Patricia, as well as displays by leading industrial firms.

Why not invite a young person interested in engineering to come with you to the open house. Bring along your family if you possibly can.

For further information, please write John Kipp, Department of Applied Mechanics, KSU, Manhattan, Kansas 66502.

THE DEPARTMENT OF CIVIL ENGINEERING has an attractive new Faculty-Student Conference Room recently named in honor of K-State Alumnus Murray A. Wilson, Salina, Kan. The beautifully decorated room was provided by the partners of Wilson and Company, Salina, and formally dedicated March 29.

K-State Nuclear Engineers Get K.E.S. Achievement Award

An internationally renowned engineering department and the world's largest refrigerated warehouse were recognized as "Outstanding Engineering Achievements" by the Kansas Engineering Society during its r cent annual meeting.

Honored were the KSU department of nuclear engineering for its international reputation in radiation shielding studies and the warehouse of Inland Underground Facilities, Inc., division of Beatrice Foods Company.

Glenn Anschutz, president of KES, presented the award to K-State. Accepting it was Dr. William R. Kimel, department head who became engineering dean of the University of Missouri, Columbia, September 1.

The KSU department was not authorized until 1958. It was the first accredited department in the U. S., and in 1964 started the first Ph.D. program in nuclear engineering.

At Rock Springs Ranch . . .

Faculty Conducts First Retreat

Faculty of the K-State College of Engineering conducted their "first" conference-retreat at Rock Springs Ranch, operated by the Kansas 4-H Foundation 11 miles south of Junction City, Kan., September 4-5.

The retreat was scheduled to provide the KSU engineering faculty with an opportunity to interact in the assessment of present programs and facilities and formulate immediate and long-term goals, according to Dr. Ralph G. Nevins, dean.

Besides some 100 faculty members and administrative staff from the college, two students—Ron Rasch, nuclear engineering senior and president of the Engineering Student Council from Buffalo, N.Y., and Larry Slupianek, mechanical engineering senior, council treasurer, Marysville, Kan.—three representatives of industry—R. V. Holloway, Boeing; Daric Miller, Kansas Power and Light Company; and David Sutton, Honeywell, Inc., Minneapolis—and Paul Newcomer, executive manager of the Kansas Engineering Society, also took part in the retreat.

Teaching Effectiveness

One of the resolutions passed by the faculty reaffirmed their belief that "excellence in teaching is a prime goal of our college." To implement this resolution, the faculty voted to establish a center responsible for development and implementation of a program for increasing teaching effectiveness within the college.

An offer has been made by an anonymous K-State engineering alumnus to fund the proposed teaching effectiveness center, pending approval of the formal program of action.

This effectiveness program is for training new teachers in instructional skills and concepts as well as for assisting current teachers in a continuing process of upgrading their quality.

In representing Boeing, Holloway pointed to several areas where engineering colleges in general could improve their programs. An area which he gave particular emphasis was that of oral and written communication. He also pointed up several areas of industry-university cooperative programs, both currently active, and proposed programs to fill needs.

K.E.S. Film Previewed

In other action, a resolution was passed calling for advising and examining committees for candidates for advanced degrees to have representatives of at least two engineering departments.

A new film on careers produced by the Kansas Engineering Society, "Engineering Makes a World of Difference," was premiered at the retreat.

Also reaffirmed was the "college's obligation to Kansas business and industry as well as the general public through extension activities." This extension activity would involve conducting short courses, extension classes on and off campus, contractual research and development, consulting, and explaining the philosophical aspects of engineering to the general public.

"The retreat served to point out clearly the vital need for establishing long-range goals in the area of programs and facilities," said Dr. Cecil H. Best, associate dean, who will head a special committee for facilities planning.

(Continued on page 4)

The K-State College of Engineering would like to produce a companion film to ENGINEERING MAKES A WORLD OF DIFFERENCE. The proposed new film is a cartoon feature describing the specific functions of the various branches of engineering. John R. Stockard of the K-State Extension Radio and TV film unit has created "Joe Hunter," the first engineer, who is characterized above, to bring to life a script written by Dwight A. Nesmith, KSU Engineering Experiment Station.

Purpose of the new film is to attract more capable youngsters into our profession. All we need now to produce the cartoon feature is money—about $5,000.00—either in a large bundle of singles or a small bundle of large denominations. Any IMPACT reader who is eager to promote engineering can help that new cartoon film become a reality by sending a contribution t

New Engineering Film
c/o Dean of Engineering
Kansas State University
Manhattan, Kansas 66502

NUCLEAR ENGINEERING FACULTY are conducting tests of simulated nuclear fallout under a $99,567 research contract for the Department of Defense on a "typical American house." The house is part of K-State's million-dollar 180-acre test site five miles west of campus. Examining polyethylene tubing positioned in tight spiral patterns around the house are Roger S. Reynolds (right), graduate research assistant, and Dr. M. John Robinson, assistant professor.

Name Two Department Heads, Two Serve in Acting Posts

Two new department heads, an acting department head and an acting director, have been named to positions in the College of Engineering at Kansas State University, announced Dr. Ralph G. Nevins, dean.

New department heads are Dr. L. T. Fan, chemical engineering, and Dr. Preston E. McNall, mechanical engineering. Appointed acting head of nuclear engineering is Dr. Richard E. Faw.

Professor Dwight A. Nesmith has been appointed acting director of the Engineering Experiment Station.

Dr. Fan

As head of chemical engineering, Dr. Fan, recently named the Kansas Power and Light Company distinguished professor at KSU, succeeds Dr. William H. Honstead.

Dr. Honstead, department head since 1960, was recently appointed to the Kansas Industrial Extension Service with offices in the College of Engineering at K-State.

Dr. McNall

Effective February 1, Dr. McNall became head of mechanical engineering. He followed Dr. Nevins who was appointed K-State's engineering dean September 1, 1967.

Dr. Faw, director of the K-State Radiation Shielding Test Facility, was named acting head of nuclear engineering September 1. Dr. William R. Kimel, former department head,

(Continued on page 4)

Two KSU Student Chapters Judged Outstanding in U.S.

Two KSU engineering student chapters—civil and industrial—were judged best in the nation by their respective national societies for 1967-68.

The KSU civil engineering chapter was selected from among 175 chapters as the best by the American Society of Civil Engineers. Dr. Vernon Rosebraugh, faculty advisor, said the KSU student chapter has been recognized as outstanding for 10 straight years.

K-State's student chapter of the American Institute of Industrial Engineers won first place in the national Wyllys G. Stanton Outstanding Student Chapter award competition. Faculty advisor is Dr. Frank A. Tillman, department head.

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Dean of the College
Dr. Ralph G. Nevins

Acting Director
Engineering Experiment Station
Dwight A. Nesmith

IMPACT Editor
Thomas A. Gerdis

EE's Add Ph.D. Areas . . .

Board of Regents OK Industrial Engineering Doctoral Program

The College of Engineering at Kansas State University is offering a Ph.D. degree in industrial engineering for the first time this fall semester.

The College also began to offer two new areas of study this semester for its M.S. and Ph.D. degrees in electrical engineering.

K-State is the first college in Kansas and several neighboring states to offer a doctorate in industrial engineering, according to Dr. Frank A. Tillman, department head.

The Kansas Board of Regents has authorized the degree on the recommendation of the National Council of Graduate School Deans.

Cite Attainments

Council representatives, in putting their stamp of approval on the KSU industrial engineering program, cited the department's "broad and versatile" faculty, student attainments, and research program. It also noted strengths of supporting and complementary course offerings.

Initially the degree will include two areas of industrial engineering—operations research and human factors. "We hope to expand our program when it becomes feasible," said Dr. Tillman.

Operations research is a mathematical and statistical approach to the design of industrial systems for optimal operation at minimal cost.

New Areas

Human factors is the study of man in his work environment. One typical area of study is the physiological cost of work for maximum productivity.

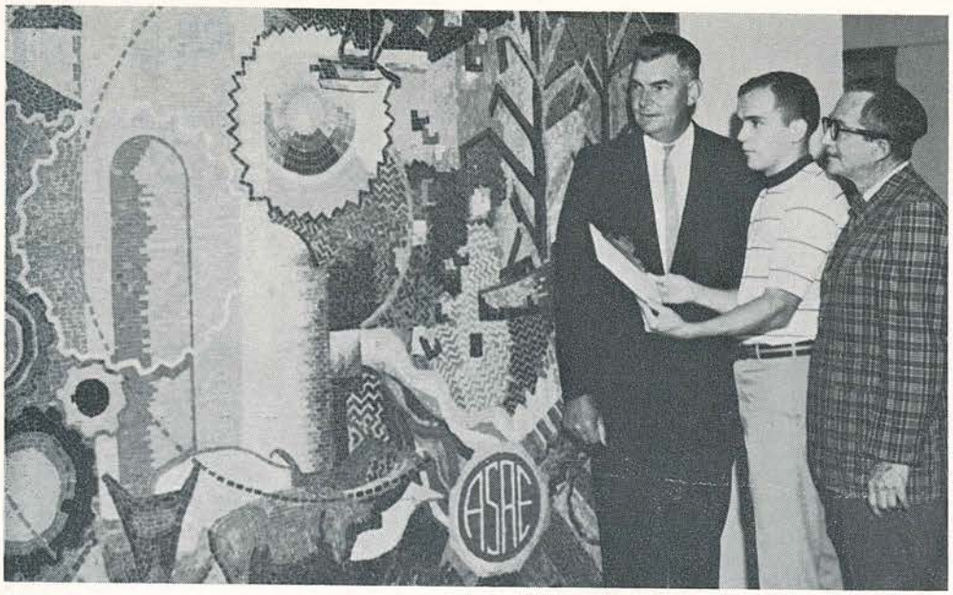
K-State has offered bachelor of science and master of science degrees in industrial engineering since 1956 when the department was established.

In electrical engineering, the new areas are solid-state and thin-film electronic studies, announced Dr. W. W. Koepsel, department head.

Enabling studies in this area at Kansas State is the acquisition of a 600,000-volt Cockcroft-Walton accelerator valued at $175,000. It was acquired from the Atomic Energy Commission (AEC) to expand graduate research programs in the study of solid-state electronics and the material sciences.

Persons enrolling in solid-state electronics graduate study will concern themselves with micro-wave devices such as signal generators and amplifiers used in telephone and space communications systems.

Some will study thin film as electronic circuit components with applications in telephone and space communications systems.



THE DEPARTMENT OF AGRICULTURAL ENGINEERING has a colorful new mosaic gracing its main hallway. G. Alden Krider (right) and his class put in some 1,000 man hours to artistically piece together 12,500 pieces of glass called tessarae into the 7.5-foot-square partial abstract mosaic. The design captures the application of engineering in agriculture through a nine-step process, according to Dr. George H. Larson (left), professor and department head. John T. Meyer (center), architectural major, was the designer.

\$760 a Month . . .

Top Salary Offers to Grads

Salary offers made to 1967-68 engineering seniors at K-State are averaging higher than ever before—\$760 per month—according to Vernon V. Geissler, assistant director of business and industrial placement.

"Offers to 1968 KSU engineering graduates were up \$46 a month over the 1966-67 average, and are \$94 higher than the average offer made to 1965-66 graduates," Geissler says.

"This year chemical engineers have fared the best, salarywise, receiving offers averaging \$797 a month; close behind are mechanical and nuclear engineers with respective averages of \$769 and \$753."

Geissler says that K-State nuclear engineers' report of \$753 a month constitutes a substantial \$79 increase over the \$674 a month average they were reporting a year ago.

Degree recipients in civil, electrical and industrial engineering have experienced more modest increases. The highest individual offer was made to a chemical engineering major—\$938 a month.

Size of offers made generally reflected employer concern over an inability to meet current and future needs for educated manpower.

Statistics just released by the U. S. College Placement Council show that nationally monthly salary offers to technically educated college seniors average \$767, and offers to seniors in non-technical curricula average \$657.

Comparable figures for 1965-66 were \$671 and \$570 respectively. K-State is one of 110 colleges and universities from coast to coast involved in the annual salary survey.

Pick New Department Heads In Chemical, Mechanical

(Continued from page 3)

became engineering dean at the University of Missouri, Columbia, September 1.

Now supervising the Engineering Experiment Station is Professor Nesmith who assumed duties July 1. He succeeds Professor Leland S. Hobson, director since 1961.

Professor Hobson retired in accordance with the State's mandatory 65 retirement age for administrative personnel. He will continue on the faculty of the department of mechanical engineering.

Dr. Fan, director of the Institute for Systems Design and Optimization for K-State, has an international reputation in systems engineering, chemical reaction engineering and transport phenomena. He has been lauded as "one of the 10 most distinguished chemical engineers in America."

As head of mechanical engineering, Dr. McNall brings more than 20 years industrial and teaching experience. Before coming to KSU as associate director of the Institute for Environmental Research in 1965, he had been associated with Honeywell, Inc., for 14 years as chief engineer of applied research for the Temperature Control Division.

Professor Hobson, engineering faculty member 22 years, came to KSU in 1946 after 20 years service with General Electric.

Produced at K-State . . .

Engineering Society Develops Colorful Film on Careers

The Kansas Engineering Society in cooperation with the film unit of the department of Extension Radio and TV at Kansas State University has produced a striking, unusual and colorful career film, **ENGINEERING MAKES A WORLD OF DIFFERENCE.**

The 14-minute sound movie is designed to attract the attention of junior high school students—action and sound are geared to their interests. Its message is general—"Think of engineering as a future career in which you will have an opportunity to make a contribution to society. It is a profession which is exciting, with variety and significance."

ENGINEERING MAKES A WORLD OF DIFFERENCE was premiered at the annual meeting of the National Society of Professional Engineers last summer. It has since been viewed coast to coast primarily because state engineering societies have purchased copies for their own distribution.

The film includes footage provided by the National Aeronautic and Space Administration, Brooks Air Force Base and the Bell Telephone System in addition to primary footage produced by the KSU film unit. The entire package is tied together by the imaginative animation of John Stockard.

Covering virtually every area of engineering, **ENGINEERING MAKES A WORLD OF DIFFERENCE** is an introductory, attention-drawing promotional device. It can be used effectively with slide-tape or movies aimed at more specific presentation of the various engineering disciplines or opportunities offered in industry.

If you are interested in boosting engineering as a profession by getting a group of youngsters interested before they have entered senior high school, the film can be scheduled for you. Contact your local KES chapter or the Society's office in Topeka.

The film's industrial and university sponsors also have prints available.

Faculty Holds 1st Retreat At Rock Springs Ranch

(Continued from page 2)

"Our course and curriculum committee will continue to look at the continuing problems common to a majority of engineering colleges—identifying a core of courses common to all engineering programs we offer. This will help boost our teaching efficiency to previously unreached heights while at the same time enabling our college to turn out engineers who will achieve professional excellence," explained Dr. Best.

While the retreat was not envisioned as an annual event, plans are already under way for a similar gathering next year.