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NSF AGAIN SUPPORTS G.E. SUMMER TECHNICAL INSTITUTE PROGRAM

As we go to press, word has just been received that a $54,200 grant from the National Science Foundation will make possible a third summer institute for faculty members of technical schools. Forty participants are expected from staffs of junior colleges and technical institutes for the eight-week program from June 17 to August 10.

Two subject-matter courses will be offered: one in electronics technology and one in machine design. All participants will join twice a week in a two-hour seminar meeting to deal with problems of technical institute education. Mathematics, both theory and engineering applications, will also be presented, with one section for those who have previously completed calculus and another for those who are beginning that discipline.

As with past institutes, each registrant selected to attend will receive a fellowship-stipend of $600 for the eight-week session, plus an allowance of $120 for each of up to four dependents, and a travel allowance of up to $60 at 4¢ per mile. All tuition and fees will also be paid by the grant-support funds.

As in the past, it is expected that the Institute will receive some ten times as many inquiries and applications as there are places to be filled. This popularity of the program reflects in part the serious needs to extend the supply of adequately trained instructors for junior colleges and technical institutes.

MARTIN ATTENDS MIT DESIGN CONFERENCE

Two Illinois faculty members, E. L. Broghamer of M. E. and Gordon E. Martin of General Engineering, were among 74 participants in a two-week international summer conference on "Engineering Design and Graphics Education." Sponsored by the National Science Foundation, the sessions included members from the United States, Canada, and Great Britain. In addition to other discussion topics, the Cambridge Group was given much of the material used in the design area of the mechanical engineering program at M.I.T.

"Although the two programs were developed independently, there are many similarities between the M.I.T. content and what we have evolved at Illinois," Dr. Martin reports. "Both programs stress engineering design of an interdisciplinary character, both encourage creativity, and both expect the student to produce detailed engineering drawings for his ideas whenever relevant."

Design projects used range from the freshman graphics course to the Ph.D. level, and many are involved with sponsored research investigations. At all levels, students encounter problems which require use of technical information and concepts beyond anything given in class -- at the freshman level, for example, design of a nonstandard highway interchange, comparison of metallurgical crystal structures, and design of a torque-measuring device for a very weak air-motor. Thus, the student is expected to develop ability in finding information independently in using it originally.

Advanced projects, which may also be used for graduate theses, range from apparently simple tasks (such as improved design for a lawn sprinkler) to more complex rocket propulsion and solid-fuel handling systems. Even though cams and gears may be involved, most problems are far from the traditional "machine design" concept. Hydraulics, thermodynamics, modern physics, or electronics are more likely to be in the forefront of attention, and areas outside engineering, such as medicine or psychology, are frequent. In the plans for a compact power source applicable to prosthetic appliances, for instance, all bearings, fasteners, and other necessary hardware are detailed.

Because of the sponsored aspects, many of the designs produced by both undergraduates and graduate students are actually built and tested in the laboratories. Undergraduates, in fact, are given the opportunity to work with other more advanced members of a design team in producing practical and useful results. "The conference," reports Dr. Martin, "was a profitable instance of the wide and increasing interest in engineering design all over the world."

DOBROVOLNY AT UCLA DESIGN AND OTHER MEETINGS

Early in September, Dept. Head Jerry S. Dobrovolny participated in the Second Conference on Engineering Design Education at Los Angeles. Some of the leading universities in the field, including MIT, UCLA, Case Institute, and Carnegie Tech, explained their approaches to design.

Most of these courses begin with the theory to be applied, move on to component analysis, and only then permit the student to attempt actual design. The new design sequence set up in GE at Illinois is consistent with this trend, though Illinois had moved ahead independently for the past five years.

"Much research is now being done in computers for design, and in the use of optimizing methods such as statistics, linear algebra, and game theory," Prof. Dobrovolny reports. "These tools," he says, "are certain to become increasingly important in the near future."

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A second meeting he attended was that of an advisory panel to assist the U.S. Commissioner of Education in planning research for the improvement of technical and vocational education. The group of sixteen, of whom Prof. Dobrovolny is a member, was called to Washington on October 15 and 16. Topic of the sessions was the study of ways in which greater numbers of technicians can be trained to meet the demands of the space age.

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At the annual convention of the Technical Drawing Associates in New York City on October 17, 18, and 19, Prof. Dobrovolny presented a paper entitled "Where Does the Draftsman's Work Stop and the Engineer's Work Begin?" One of the points stressed was the necessary revision of the draftsman concept. Unlike practices of a few years ago, the draftsman now must be a member of a specialist team where his assignment calls for knowledge and skills well beyond the instrumental.

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Latest attendance of interest was at the recent conference conducted in Chicago by NASA on the science and technology of space exploration. Some 2,000 persons were invited, including educators from over 300 colleges and universities. Purpose of the meeting was to increase awareness among educators of NASA manpower needs. Discussion was also given to specific services which would complement the work of the national space program.

THREE GE STUDENTS IN TAU BETA PI

Elected to membership in Tau Beta Pi, top all-engineering honor society, are three seniors in General Engineering. The men selected for the fall semester are John J. Nonneman, Springfield; Charles H. Thomas, Hillside; and Edward C. Wahl, Arlington Heights. Considering the size of the Department of General Engineering in relation to others of the College, this is an unusual and enviable record of scholastic achievement. Congratulations to all three!

NEW FACULTY MEMBERS

A new instructor on our staff is Christy Murphy, who comes to us from the staff of Canton Community College, Canton, Illinois. Christy is working towards a Master's Degree in Industrial Education and plans to remain in teaching as a career. He is married and is the father of two sons. He joins Professor Paul Steinbeck as the second member of the G. E. staff who is a graduate from the United States Military Academy. His hobby is firearms.

Last February, we gained the distinction of adding a minister to the roster. Reverend Gordon Bucy has held pastorates in American Baptist churches at Danville, Marseilles, and Lincoln, Illinois. He is now studying architecture in preparation for becoming Building Consultant and Architect for the American Baptist Home Mission Society. All of this came about as an outgrowth of Gordon's hobby of woodworking and building--he once built a house himself as a hobby project--and the interest he found in his church building programs. He also includes sports among his avocations, now in temporary suspension for lack of time. He is a graduate of Temple College, Chattanooga, Tennessee, and of Northern Baptist Theological Seminary in Chicago. Gordon and his wife have a daughter, Jana, age 2 1/2, to complete their family.

A former outstanding G. E. Student, Randal Smith, '61, now in the MBA program at the University, is teaching part-time. He expects to get his degree in June, '63, will then probably put in a tour of duty with the Army, after which he hopes to find a job with industry in the area of production. Randal was recently married; he also lists woodworking and hunting as hobbies.

James Rice, who graduated last August from the M. E. undergraduate curriculum, is now studying economics in addition to teaching drawing classes. He hails from Jerseyville, Illinois, is single, and loves to play golf. As an undergrad, he was an active columnist for the Daily Illini. Jim has two years of work ahead of him and has no definite plans beyond that point.

Returning from industry for advanced work is Don Klokkenga (klok-en-gay), M.E. '59. Don is on leave of absence from the transmission design department of Caterpillar Tractor Company, Peoria, and is studying machine design while teaching half time. Don likes to hunt and fish. He and his wife are from Delavan, Illinois.

OTHER NEWS ITEMS

G. E. honor student John D. Raffl recently won a College-Aid-Grant, in a nation-wide essay competition among sons and daughters of employees in member firms of the National Association of Tobacco Distributors. His subject was "How Can the Meaningfulness of Democracy be Propagated Throughout the World?" The essay stressed the need for the U.S. to use the benefits of democracy to upgrade the poorer sections of the world. Education is especially important, the whole idea being to help such people to help themselves as a necessary preliminary to governing themselves.

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Response to our questionnaire seeking alumni information has been good, and the next issue of the newsletter will contain a goodly number of Department graduates. If you have not done so, please send us information about yourselves and your jobs, personal experiences, suggestions, or other reports on topics of interest.

CHARTER PRESENTED FIRST STUDENT SPE IN STATE, NINTH IN NATION

The first student chapter of the Society of Professional Engineers in Illinois and the ninth in the United States received its national charter at the University on November 14. Presentation was made by the new Executive Secretary of the Illinois Society of Professional Engineers, Larry N. Spiller of Springfield. He also made the address of the evening, pointing out the need for professional conduct as "A Challenge to 1963 Engineering Students."

The meeting for the presentation in the EE Lounge marked completion of the probationary year for the University of Illinois chapter. The new student group is sponsored by the Champaign County Chapter of ISPE, and was largely organized by members of the G.E. Department.

Some 75 students throughout the college are members of the chapter. William R. Evans, Chicago, is President; Joseph M. Cablk, Chicago, is Vice President; Constance J. Mayer, McHenry, Secretary; and Thomas R. Metzger, East St. Louis, Treasurer. Faculty Advisers are Robert Jewett and David Reyes-Guerra, both of General Engineering.

REPORT OF SUMMER PROGRAM FOR SECONDARY SCHOOL STUDENTS

The third annual Summer Training Program in Engineering and Science for high-ability secondary school students was held from June 25 to August 3. Sponsored by the National Science Foundation, the program was intended to acquaint superior high school juniors with the curricular possibilities of engineering and science.

Thirty-three boys and seven girls were chosen from almost ten times as many well-qualified applicants. Eleven of the participants were from outside the State of Illinois, with four from Pennsylvania and three from New York State.

Students worked in many areas during the six-week session. In mathematics, beginning with the slide rule and trigonometry, registrants worked through parts of the calculus and differential equations. Additional topics in number systems and computer logic were also included.

One morning per week was set aside for an individual research project. Here the students met with project directors and were allowed to participate in the research as it progressed. Each student later made an oral report on his project to the summer group, thus exchanging information and insights on the conduct of research projects.

In the afternoons, various laboratory experiments and demonstrations were carried out. Topics included determination of the half-life for nuclear material, a variable air-fuel ratio test, measurement of the dielectric constant for barium titanate, pulsed operation of the 100-kilowatt TRIGA reactor, and many others.

Experiments were supplemented by lectures on engineering and science presented by outstanding visiting engineers and scientists. Topics in the history of engineering were also included.