

Mike  
JT 2261

# Items

**INSTITUTE OF TECHNOLOGY**  
University of Minnesota  
Minneapolis, Minnesota 55455

Volume 1, Number 2  
Winter Quarter 1975

## ITEMS AVAILABLE ON REQUEST

Items is published by the Institute of Technology at the University of Minnesota with the cooperation of the I.T. Alumni Association. It is mailed free to members and to others who may be interested in activities of the Institute of Technology.

If you wish to be added to the mailing list or would like copies sent to other persons, please notify the editor, in care of Dean's Office, Institute of Technology, 107 Main Engineering, University of Minnesota, Minneapolis, Minn. 55455.

## CONTINUING EDUCATION MEETS CHANGING NEEDS

An enlarged program of continuing education to meet identified needs of practicing engineers and technical personnel is being offered by the Institute of Technology.

The increased effort and resources being applied to the continuation program represents an I.T. response not only to the demands imposed by constantly changing technology but also to the changing job responsibilities and management assignments that engineers must handle. The continuing education programs also reflect the fact that the Institute of Technology is the central core

of advanced education and academic research in engineering and sciences for the whole state of Minnesota.

These programs amount to a "degree plus" concept, utilizing whatever is new in educational technology as well as up-to-date substantive content in the courses, according to Morris E. Nicholson, Director of Continuing Education in Engineering and Sciences for I.T.

"For the practicing engineer, continuing education must be relevant to the times and also must be prepared to deliver the principles of an old or established technology for which a new demand may arise in a particular situation. The ongoing education is essential to keep engineers current in a chosen field and must fulfill occupational requirements subject to change," Nicholson said. "In order to remain in a competitive position, modern industry must be at the forefront of appropriate scientific and technological knowledge."

With change occurring rapidly in both industry and education, I.T. sees its continuing education mission as a co-operative effort with industry or as a supplement to what technical personnel is learning constantly on the job, Nicholson also observed that the impact of modern technology is at the front of changes taking place in practically every occupation or profession.

The "degree plus" concept of I.T. continuing education reached a milestone point in November of

## FROM DEAN SWALIN

### *Unique, changing, growing; I.T. troubled by old buildings*

It occurs to me that many I.T. alumni who were graduated some years ago may not be aware of changes which have occurred at the university over a period of time. So it might be appropriate to use this publication to bring you up to date.

The complexion of the Institute of Technology at the University of Minnesota is virtually unique in American higher education inasmuch as physical sciences, engineering and architecture are housed under one administrative roof here. As a consequence, the college is large and diversified in number of students and also in physical facilities. The number of undergraduates currently enrolled in I.T. is about 4,000, and the number of students seeking M.S. and Ph.D. degrees in our departments is about 1,200.

In addition to those, many more thousands of students registered in other colleges or divisions of the university come to I.T. for courses in mathematics, physics, astronomy, chemistry, geology and architecture.



Dean Swalin



### FROM THE DEAN

*Continued on page 5.*



### CONTINUING EDUCATION

*Continued on page 3.*

# 'Fundamentals Review' series on video tape

The Engineering Fundamentals Review series, which has been offered for several years as an extension class, is being made available this year for video tape presentation as well.

Engineering Fundamentals Review is a program that was developed to assist practicing engineers in preparation for the examination for Engineer in Training professional registration.

The video tape series has been developed as a cooperative project of the Institute of Technology and the Minnesota Society of Professional Engineers. It consists of 20 half-hour tapes covering the engineering topical material involved in the EIT examinations.

The video tape series already has been presented to engineering employees at 3M and the Minnesota Highway Department, and for general viewing by engineers at Anoka-Ramsey Community College. During the 1975 winter quarter, the series also is being shown to I.T. students in one of the UNITE overflow classrooms and in the Engineering library on the University of Minnesota campus with newly-acquired video tape equipment.

It is also planned to present the tape series through the University's Rochester Center on five successive Saturdays beginning March 1. Further information regarding the offering at Rochester may be ob-



## Six receive PDRP citations

Six engineers and scientists, all holding degrees and working in their professional fields, made up the first group to receive citations marking completion of advanced education studies which they had planned for themselves under the Institute of Technology's Professional Development Recognition Program (PDRP). Five of the six attended a meeting to receive the citations from Dean Richard A. Swalin of I.T. and Dean Harold A. Miller of the Department of Continuing Education and Extension. Shown here, left to right, are Rajbir Kang of the 3M Company, Dean Miller, Richard Weltzin of IBM, who already holds a doctor's degree; William Kujawa of Control Data, John Huber of 3M, also a Ph.D.; Dean Swalin, and Louis Lambert of Honeywell. Jerome Hartlaub of Medtronic, the sixth recipient, was not able to attend the award session.

tained by contacting Dr. Russell May in that city or by telephone (area code 507) 288-4584.

In addition to the Engineering Fundamentals Review via both Ex-

tension Division classes and the Video tape series, the Institute of Technology is projecting a variety of other continuing education offerings for the coming months.

# items

## INSTITUTE OF TECHNOLOGY

University of Minnesota  
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Winter Quarter, 1975

**ITems** is a quarterly publication of the Institute of Technology at the University of Minnesota, with special support from the I.T. Alumni Association. Material from this publication may be reproduced without cost, but credit to ITems will be appreciated. Requests to be placed on the mailing list or other inquiries may be directed to Clarence A. Berg, at the above address. Phone 373-4838.

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Assistant Dean, Student Affairs: Paul A. Cartwright  
Director of Continuing Education in I.T.: M. E. Nicholson  
I.T. Alumni President: James A. Lenarz  
Editor: Angelo Cohn

The University of Minnesota adheres to the principle that all persons shall have access to its facilities, activities, and employment without regard to race, creed, sex or national origin.

## Coming events of tech interest

The schedule includes:

### WORKSHOPS:

**April 11-12.** How to use the STRESS computer program.

**Fall,** Dates to be announced. How to Design Reinforced Concrete Slabs.

### CONFERENCES:

**March 19.** Soils Mechanics and Foundation Engineering, 23rd annual meeting. Mayo Auditorium, Minneapolis campus.

**May 15-16.** Improving Scientific and Technical Communities.

**May 28-30.** Particle Symposium. Sponsored jointly by I.T. Department of Mechanical Engineering and the Environmental Protection Agency.

**June 11-12.** Solvent Extraction and Liquid Ion Exchange for the Mineral Processing Industry.

### EXTENSION CLASS:

Spring quarter, Wednesdays, 6:20-9:20 p.m. Rhetoric 3257-Scientific and Technical Speaking. 4 credits. Ford Hall, Minneapolis campus, room 120.

Further information may be obtained from Prof. Morris E. Nicholson, Continuing Education in Engineering and Science, 11 Mines and Metallurgy, University of Minnesota, Minneapolis, 55455. (area code 612) 373-3132.

## CONTINUING EDUCATION

*Continued from page one.*



**Morris Nicholson**

1974 when six practicing engineers and scientists received citations formally marking completion of individualized studies under the Professional Development Recognition Program (PDRP). The citations were presented by Richard A. Swalin, Dean of I.T., and Harold A. Miller, Dean of Continuing Education and Extension. The joint presentation symbolized the fact that PDRP is a coordinated undertaking of the two university divisions. (A photograph and names of the recipients appear elsewhere.)

PDRP is just one of a wide variety of programs which I.T. makes available to practicing engineers, but is unique in its personalized structure.

Nicholson explained that the fundamental plan is built on a schedule which usually can be completed within just two years by a person who remains fully employed during that time. The relatively short time span for such a comprehensive program was selected in order to make it feasible for an employed engineer or scientist to pursue more than one program during a professional career and thus keep abreast of changes within an industry or new developments from research and also to follow appropriate PDRP courses if and when that person's needs may change because of a new assignment or advancement within a company's management.

Each PDRP candidate develops a study sequence in accordance with particular desires and his working situation. The initial step is to prepare a statement of specific objectives worked out together with an immediate supervisor at the place of employment and an I.T. advisor.

"After the goals have been established, implementation of the study procedure is likely to encompass not only a certain number of university courses but also educational opportunities external to the campus," Nicholson said. "Those external elements of the program might include such things as in-house classes or training offered by a company, specialized seminars, professional workshops and short courses, or instruction programs on video tape available from different sources. The total program is organized to cover the equivalent of 18 quarter credits, and up to half of the instruction may be from non-university work."

Over-all organization and monitoring of PDRP is through Nicholson's office in I.T., but PDRP coordinators also are designated at industrial plants or institutions where large numbers of engineers and technical personnel are employed and where managements encourage participation.

The individualized nature and great flexibility of PDRP makes it valuable and attractive not only to large industrial organizations but also to engineers who may be engaged in independent practice or consultation. Need for training of this type also may be created by product changes, research findings, company mergers, departmental realignments or introduction of new instrumentation and new equipment as well as by personal advancement.

Other programs which I.T. has developed to carry instruction beyond the traditional classroom range from one-time special lectures and short courses of a few days' duration to the UNITE system that carries regular campus classes to several locations through a closed circuit television network. Demand from practitioners for different types of continuing education opportunities is expected to increase, judging by University of Minnesota experience since such programs were initiated under Prof. James Holte of Electrical Engineering. Holte was the first I.T. specialist designated to work through the General Extension Division and Nolte Center for Continuing Education on tech course offerings. Many of the activities now directed by Nicholson were started under Holte.

## What have graduates done lately for I.T.? is first question from new alumni president

In a recent article in IEEE Spectrum the authors Thompson, Dalton, & Kopelman, used the title, "But What Have You Done For Me Lately?—The Boss." Their article discussed technological obsolescence, a subject that most of us in the technical arena are interested in.

I feel it also is a justified question for our I.T. Alumni Association. An association such as ours has two bosses—I.T. and the Alumni. I question, "What Have We Done for You Lately?"

As I look at what we have done in the past year, I feel that we did an outstanding job with our seminar and Annual Banquet program. I also feel that the introduction of "IItems" by the Institute is a significant contribution by I.T. and the Alumni Association not only to graduates but also to the community.

My question is, however, in the light of a rapidly changing technical, financial, cultural and political environment, are we as an Alumni Association meeting our responsibilities to you as individual members, to the association, and to the Institute of Technology?

In order to evaluate that question, we need to review our defined responsibility. The Alumni Association's responsibility as stated in the constitution is:

### PURPOSE

The purpose of the Association shall be:

- a. To stimulate a continuance of interest of graduates and former students in the work of the Institute of Technology of the University of Minnesota.
- b. To provide a medium whereby the alumni of the Institute of Technology may cooperate with the University for the improvements not only in the Institute, but of the University of Minnesota in its entirety.
- c. To cooperate with the administration and faculty of the

Institute of Technology in providing the highest possible standard of scientific and technical training for its students and graduates, and to promote a closer acquaintance between those who teach and those who practice.

d. To take joint action when and where indicated for the advancement of the Institute of Technology.

e. To provide a clearing house for the presentation of problems pertaining to the Institute of Technology and requests for service to the mutual benefit to the Institute and its alumni.

f. To disseminate news items relative to activities of the Institute of Technology and concerning the professional work of its alumni and former students.

My question is two-fold.

1. In today's environment, is our stated purpose adequate for meeting the responsibility of the Association as you perceive it?
2. How best, in the existing environment, can we fulfill our purpose?

It's a new year and new board for the Association. Last year's board did an outstanding job of building for the new board to work from. The officers and I welcome your ideas and suggestions and ask that you let us know them by sending comments to IItems in care of the dean's office.

**JAMES A. LENARZ**, President  
I.T. Alumni Association

## Patrons of alumni annual dinner

The following companies reserved patron tables at the Institute of Technology Alumni Association's 1974 annual dinner:

American Hoist & Derrick  
David Braslau Associates  
Buckbee Mears Company  
DeVac, In.  
Donaldson Company, Inc.  
Eaton Corp., Char-Lynn Division  
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Sheldahl  
Sperry Univac  
Tennant Company  
Thermo King  
3M Company  
Toltz, King, Duvall, Anderson & Associates  
Toro Company  
Twin City Testing  
Whirlpool

Although the physical plant seems large with I.T. occupying all or part of 17 buildings on the campus, the facilities for electrical and civil engineering are below standard for these times. This should not be surprising to graduates working in modern industrial buildings of recent vintage when they consider that the main campus structures designated for electrical and civil engineering were built in 1923 and 1913 respectively, or more than 50 and 60 years ago. Requests for new facilities for those two departments are included in the University presentation to the State Legislature.

Emphasizing the nature of the problem, an outside visiting committee recently conducted an evaluation of our civil engineering situation. Those outsiders characterized our facilities as obsolete and among the worst they had ever observed. We believe that a strong engineering program is important to the State of Minnesota, that the faculty and students need proper physical facilities to teach and learn effectively, and we hope that adequate support will be provided.

Other important changes and developments also are worth mentioning. Prior to World War II, this state and the university were "exporters" of engineering and scientific talent, and the majority of our graduates left to work outside of Minnesota. This was due to the relatively small concentration of industry located in the state. The situation changed, especially during the 1950's and '60's, and significant industrial development occurred, particularly in the high technology sector.

Now this area's computer industry alone directly employs some 35,000 people. The high technology industries require a very large percentage of scientific and engineering manpower; and because of the rapid changes in technology, they relate strongly to the Institute of Technology and are vitally interested in recruiting our graduates and in having advanced courses for their professionals.

Reflecting the increase in the state's industrial base, about 70 percent of I.T. graduates now take their first employment in Minnesota. In some fields, in fact, Minnesota is a net importer of technically trained talent.

I.T. faculty is high in quality, enthusiastic and is energetic about meeting the challenges that accompany or result from these developments. To interact more effectively with the community, the Institute now has an Advisory Council which is composed of businessmen and government officials, and we meet periodically with council members to exchange views, bring the community people up to date on our activities, and solicit their ideas as to our mission and how best to fulfill it. We also have strengthened relationships with the I.T. Alumni Board, as attested to by the excellent seminar programs that have developed in conjunction with the annual meeting of the I.T. Alumni Association.

In addition to those efforts, increased emphasis is being given to continuing education (discussed in greater detail in other articles of this news letter). As many of you know, our UNITE television system makes it possible for engineers in Minnesota industry to take regular I.T. courses at their places of employment instead of having to travel to the Minneapolis campus when those courses are offered. Broadcasts from studio classrooms where regular students are in attendance are disseminated over two channels in the microwave band. Participants in receiving stations already established at 12 plant sites are able to join in discussions just as if they were present in the classrooms. The half-million dollar network was developed and is supported through fees paid by participating companies which recognize the importance and convenience of keeping technical personnel abreast of current trends. Our Minnesota UNITE network is one of the few systems of its kind in the country whose success is recognized.

There are many other developments on which I could touch, but I'll defer some for future issues of I.T. At all times, however, we appreciate hearing from graduates and professionals with thoughts, ideas, and opinions.

**RICHARD A. SWALIN**, Dean  
Institute of Technology

## Alumni elect Lenarz, 7 new board members



**James A. Lenarz**

James A. Lenarz of Honeywell, Inc., has been elevated to the presidency of the I.T. Alumni Association and seven new board members have been elected for two-year terms.

Other new officers are Horace Davis, First Vice President; Everett Dale, Second Vice President, and David Kill, Secretary-Treasurer.

New members of the board of directors and their specialization areas are Frederick J. Bentz, Architecture; Noel T. Stone, Electrical Engineering; Wayne Schmoedeke, Mathematics; Ken Finden, Agricultural Engineering; W. A. King, Geology and Geophysics; Nathan D. Puffer, Chemical Engineering; Marius Cohn, Physics.

The carry-over board members are Earl Angell, Len Laskow; James A. Hodek, Ken Schultz, Bruce Torp, Ron Nicum and Clark Bergman.

Past President Walter Griffin, I.T. Dean Richard Swalin, and Ed Haislet, executive director of the Minnesota Alumni Association, are ex-officio members of the board of the I.T. group.

# Century Council support is vital

After the University of Minnesota marshals its resources from state appropriations, public and private grants, student tuition fees and other regular sources of income, there invariably remains a financial gap between the total of those funds and the assessment of institution needs.

For the Institute of Technology as for other divisions of the University, resources which can be raised and channeled into that gap represent the "margin of excellence" for which the college strives.

One source for this additional support is the I.T. Century Council, a program through which graduates and others can help the University and I.T.

A salient feature of contributions made through the Century Council is that funds so raised are placed under control of the dean. The money can then be used at his discretion, and the historic pattern has been to apply such money to activities or programs not covered in the regular budget.

## TO GRADUATES AND FRIENDS OF THE INSTITUTE OF TECHNOLOGY:

*The Century Council committee and I as its chairman strongly support the effort to provide this discretionary funding for Dean Swalin to use for various programs which he and his staff consider worthy but which are not otherwise supported.*

*We might say that the University should provide the money for all such programs, but it is important to realize that as budgets are reduced and tightened, funds for these special activities are most difficult to find. These special funds are not subject to University control except in a general way, and are utilized to support programs reviewed with the Council committee.*

*I trust that I.T. alumni who are not now supporting the Century Council will join those of us who are. A decision to do so will show appreciation for the college training each has received with its benefits, both personal and to the business community.*

**C.W. BRITZIUS**, Chairman  
I.T. Century council



UNIVERSITY OF MINNESOTA  
INSTITUTE OF TECHNOLOGY  
CENTURY COUNCIL

YES, I wish to join the INSTITUTE OF TECHNOLOGY CENTURY COUNCIL.

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